You & Your Baby

Report of the Advisory Committee on INFANT MORTALITY & HANDICAP IN NORTHERN IRELAND

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Michael Alison, Esq., M.P.,
Minister of State for Health and Social Services.

June, 1980.

Dear Minister,

In December, 1978, your predecessor, Lord Melchett, set up under my chairmanship an Advisory Committee on Infant Mortality and Handicap. We were asked to examine the problems of infant mortality and handicap in Northern Ireland, to make recommendations for improvements, and to discharge our remit as quickly as possible.

I now have pleasure in submitting our Report to you.

As the first meeting of the Committee took place less than 18 months ago—and our examination of the subject involved more than 60 meetings of the Committee and its Sub-Groups—I feel we have carried out this wide ranging task with all due dispatch consistent with the thoroughness expected of us. This has entailed a major commitment from Committee members who were already busy people with onerous responsibilities, and I am indeed grateful to each of them for the contribution, both in time and effort, that they have made.

The Committee, representing as it did a wide variety of interests, naturally did not always agree on every detail. We did however reach unanimous agreement on the recommendations which, we are convinced, will be most effective in reducing infant mortality and handicap in Northern Ireland. In making our recommendations we kept in mind throughout the serious economic climate likely to exist for a number of years and resisted any temptation to recommend other than essential action in areas needing additional resources. Many of our recommendations will not cost money; others we found difficult to cost with any precision as the financial and staffing implications will only become apparent when decisions are taken on how they are to be implemented. Nevertheless we are satisfied, as we make clear in the Report, that not only will our proposals reduce the human suffering arising from infant mortality and handicap, but they will prove cost effective in raising standards of care and reducing the number of handicapped persons for some of whom the Government has to provide throughout their lifetime.

The Committee would like to express their gratitude to all the members of the Secretariat, medical and administrative, provided by the Department. We were extremely well served, and the Secretariat's patient and efficient support has been a constant source of strength and encouragement to us throughout our deliberations.

I hope the Report will be studied carefully by the many interests concerned and that implementation of the various recommendations will bring about measurable improvements. You may indeed wish to consider whether a summary of the report should be published alongside the full version and given the widest possible circulation. It is important that the public generally should be aware of the relevance of the social and economic, as well as of the purely professional factors, in this problem.

Yours sincerely,

T. T. BAIRD.

GLOSSARY

This glossary has been prepared for the convenience of the lay reader and contains some of the more commonly used expressions. It is not intended to be a medical dictionary.

Fetus	—	the developing baby within the womb.
Gestation	—	the duration of a pregnancy.
Handicap	—	a disability which for a substantial period, or permanently, retards, distorts or otherwise adversely affects normal growth, development or adjustment to life.
Morbidity	—	a state of ill health demonstrable by symptoms or signs.
Mortality Rates:		
Infant Mortality Rate	—	deaths during the first year of life per 1,000 live births.
Neonatal Mortality Rate	—	deaths during the first four weeks of life per 1,000 live births.
Perinatal Mortality Rate	—	stillbirths and deaths during the first week of life per 1,000 total births.
Postneonatal Mortality Rate	—	deaths at ages over 28 days and under one year per 1,000 live births.
Neural Tube Defects	—	developmental abnormalities of the canals of the brain and spinal cord.
Parity	—	the total number of previous live and stillbirths, excluding abortions.
Primary Care Team	—	a multi-disciplinary team providing health and social services care and advice in the community. It normally consists of a general medical practitioner, a district nurse, a midwife, a health visitor and a social worker.
Puerperium	—	the period following delivery, usually regarded as lasting six weeks.
Stillbirth	—	late fetal death after 28 weeks of gestation.
Trimester	—	one of the three periods into which pregnancy is divided. The periods are 0-12 weeks, 13-28 weeks and 29-40 weeks (term).

CONTENTS

1. INTRODUCTION

"A comely offspring she shou'd raise
From sickness free, of lengthen'd days"
—Plato

1.1 A greater proportion of children in Northern Ireland are dying before the age of one year than in Great Britain and most other economically developed countries. Because of the concern felt by the Government about this problem an Advisory Committee was appointed in December 1978 by the then Minister of State for Health and Social Services, Lord Melchett. The terms of reference were:—

— to examine the factors which contribute to high infant mortality rates and infant handicap in Northern Ireland;
— to consider in the light of such factors the adequacy of community health and social services and hospital services;
— to make recommendations with a view to reducing infant mortality and handicap;
— to identify the financial and staffing implications both at regional and area levels; and
— to advise on priorities as appropriate.

1.2 We approached our task by studying the different factors associated with infant mortality and handicap. Throughout the Report we use the term infant mortality not in its statistical sense but in its widest sense which includes stillbirths. Only where specific reference is made to the infant mortality rate are stillbirths excluded. (See glossary for definitions).

1.3 To assist the progress of the work of the Committee and share the workload amongst all the members we decided, at an early stage, to set up sub-groups to examine various aspects of the problem of infant mortality and handicap and the services available. Each sub-group normally contained two or three Committee members, one of whom acted as Convener, and a small number of other persons with special knowledge of the subject being examined in depth by the group. In addition an expert panel was nominated for each group to consult as necessary.

1.4 Eight sub-groups were established to deal with the following matters:—

Social, Cultural and Economic Factors
Health Education
Information Services
Genetic Counselling and Screening
Antenatal Care
Pattern of Hospital Services for Perinatal and Neonatal Care
Postneonatal Care
Teaching and Training

Details of the membership of sub-groups and panels are set out in Appendix 1.

1.5 The first meeting of the Committee took place on 20 December, 1978, and it met on twelve occasions in all. The eight sub-groups held a total of 52 formal meetings in addition to informal discussions between Conveners, sub-group members and the Secretariat. About half of the sub-group meetings

involved the taking of evidence from panel members and others. The Social, Cultural and Economic Sub-Group had the assistance of a research officer for a period of 3 months to provide analyses of recent data relating to Northern Ireland. Visits of a fact-finding nature were made, mainly by the Secretariat, to a number of hospital units throughout the Province. Each sub-group prepared a report on its particular subject and these were examined in detail by the Committee at 5 separate meetings. They form the basis of this Report.

1.6 An editing sub-committee was set up to prepare the final version of the Report. It met on 5 occasions and its membership is detailed in Appendix 2.

1.7 Following the announcement of the establishment of the Committee, a number of organisations and individuals submitted written comments. Later, bearing in mind the widespread interest and concern particularly about infant death, we decided to give everyone an opportunity to state his view. A notice was therefore placed in the Press inviting interested organisations, groups or members of the public to submit written comments on any aspects of the Committee's work. In addition letters were sent to Health and Social Services Boards, Northern Ireland Members of Parliament, the main Political Parties in Northern Ireland, the four main Church bodies and a wide range of professional and staff bodies associated with the health and personal social services telling them about the work of the Committee and giving them the opportunity to put forward observations. A list of the organisations and individuals from whom comment was received is contained in Appendix 3.

1.8 The Committee was most appreciative of the deep thought and wise counsel given by members of sub-groups and panels, by persons and organisations who submitted evidence and by others who were consulted informally. Their advice proved of great value based as it was on a wide range of knowledge and expertise. We gratefully acknowledge the hard work and time so willingly and conscientiously given by sub-group and panel members. Deserving of special mention was the analysis of data prepared by the research officer. We also recognise the help and co-operation received from officers of Health and Social Services Boards and the Department of Health and Social Services which greatly facilitated our work.

2. BACKGROUND

2.1 Since the beginning of the 20th century stillbirth and infant mortality rates have shown a general decline in the United Kingdom and in many other countries with broadly comparable socioeconomic conditions and this decline has been accompanied by a corresponding improvement in the health of children. The main reasons for these changes are advances in socioeconomic and environmental conditions, control of infections and better obstetric and paediatric care.

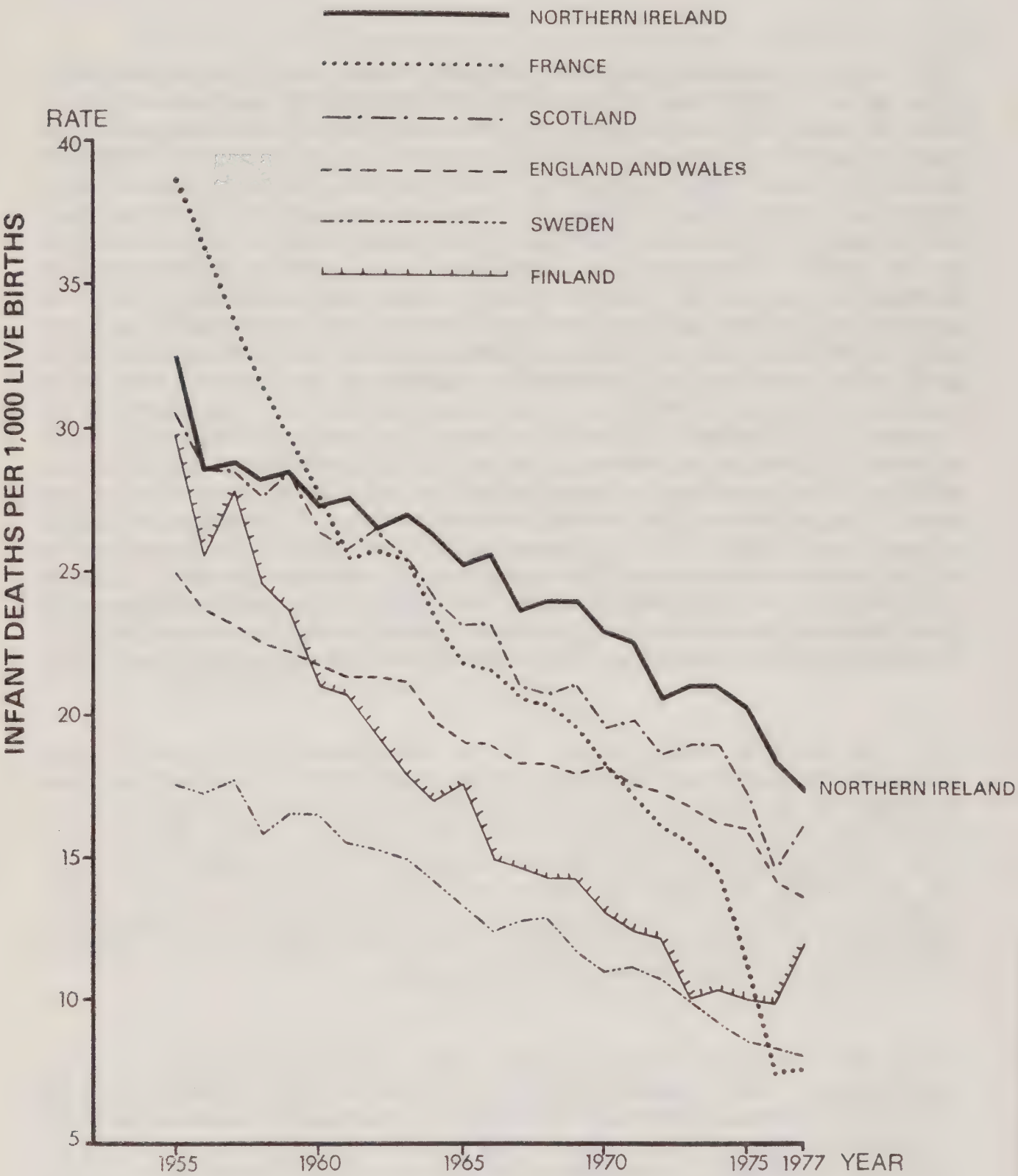
2.2 Figure 1 would appear to demonstrate that overall the improvement in the infant mortality rate in Great Britain has not kept pace with improvements in many other developed countries and that Northern Ireland has continued to have a higher rate than England, Scotland or Wales. It should be noted however that international comparisons need to be treated with caution as account must be taken of differences in definitions, sources of data and recording and measuring practices (Weatherall, 1977; Chalmers and Newcombe, 1978). There are also difficulties in comparing statistics within countries because of the variable factors which affect mortality rates. An example of this is the fact that the Great Britain Abortion Act 1967 does not apply in Northern Ireland. There is little doubt that in Great Britain, as in many other countries, a considerable number of pregnancies are being terminated in cases in which the fetus is at high risk or is considered to be abnormal. In Northern Ireland infant mortality figures probably reflect this difference. Nevertheless, too many infants in Northern Ireland are dying and a further serious problem is the significant number of children who survive beyond the first year of life but suffer from handicap which originated during pregnancy or infancy. There is increasing evidence from international studies which throws some doubt on the commonly held view that levels of mortality and handicap are closely associated. The absence of detailed information about handicaps associated with adverse circumstances at or around birth makes it difficult to draw conclusions about the situation in Northern Ireland.

2.3 In Western society many of the conditions which caused infant mortality, morbidity and handicap in the past have been recognised and abolished. In Northern Ireland four principal conditions account for about 70% to 80% of all stillbirths and deaths in the first year of life. These conditions—low birthweight, congenital malformations, hypoxia and infections—are more likely to occur in infants of women who have serious health problems or obstetric disorders or those who are socially or economically deprived. The many factors associated with infant mortality and handicap are considered in detail in the following chapters.

2.4 The histogram, Figure 2, shows infant mortality at intervals over the past 30 years. This demonstrates that although the infant mortality rate fell considerably between 1950 and 1960 this drop was mainly due to a fall in the postneonatal mortality rate. Since 1960 the reduction in infant mortality has been due to changes in mortality in the first month, including a reduction in both first day and first week mortality. There has been virtually no change in the postneonatal mortality rate since 1960.

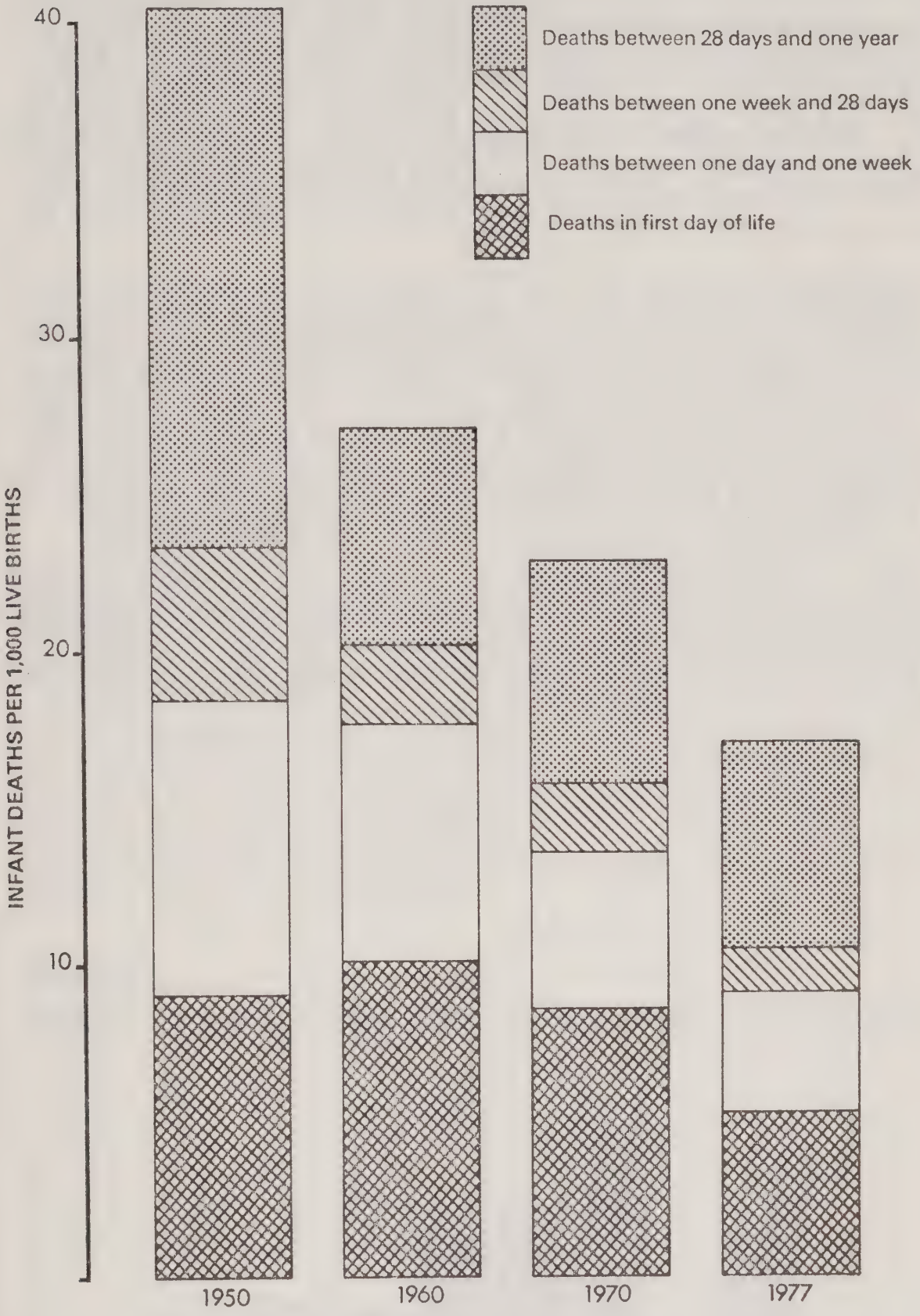
FIGURE 1

INFANT MORTALITY RATE IN SELECTED COUNTRIES 1955-1977



(Annual Statistical Reports of the World Health Organisation)

FIGURE 2
COMPONENTS OF INFANT MORTALITY IN NORTHERN IRELAND IN 1950, 1960, 1970 AND 1977



(Registrar General, Northern Ireland)

2.5 Many studies of infant mortality have drawn attention to the important relationship between socioeconomic and biological variables but the complexity of this relationship makes it difficult to isolate or quantify the effect of the component variation. Several major national studies have discussed the importance of differences such as social class, birthweight, gestation, maternal age and parity (Butler and Bonham, 1963; Butler and Alberman, 1969; Chamberlain, 1975). International studies have supported the general conclusion that the major social and biological factors which affect mortality operate in each country studied (Office of Population Censuses and Surveys, 1979(ii)). All these studies have commented on the complex relationship, affecting infant mortality and handicap, which exists between socioeconomic factors, such as poverty and nutrition, cultural factors including family size and birth interval, and biological factors.

2.6 Longitudinal studies like the National Child Development Study, which followed up all children born in one particular week in 1958, show that socioeconomic factors affect not only the risk of mortality at birth but also the likelihood of later handicap (Davie and Butler, 1972). In this comprehensive study children born into families defined as disadvantaged were found to be at higher than average risk from a wide range of conditions throughout their childhood. For example, children in this group were more likely to be of low birthweight, to suffer childhood illness, to be shorter in height and to have a lower level of educational achievement (Wedge and Prosser, 1973).

2.7 Many of the factors which affect the outcome of pregnancy lie outside the traditional scope of the health services. It is important that recognition is given to factors such as a woman's diet, stature and housing. Her behaviour during pregnancy, for example smoking and drinking, also affects the outcome.

3. SOCIAL, CULTURAL AND ECONOMIC FACTORS

3.1 Attention was drawn in Chapter 2 to the importance of socioeconomic and cultural factors in the problem of infant mortality and handicap. Although the major impact on the problem will come only from a general improvement in socioeconomic conditions, a great need exists for selective action in the meantime to improve provision for certain women during pregnancy and for needy families with young children. The uneven distribution of infant mortality and handicap requires attention to be directed towards those groups with particularly high rates. The main social, cultural and economic factors associated with infant mortality and handicap are highlighted below. Many of them are more pronounced in Northern Ireland and attention is drawn to this where the situation here differs from elsewhere.

Social Class

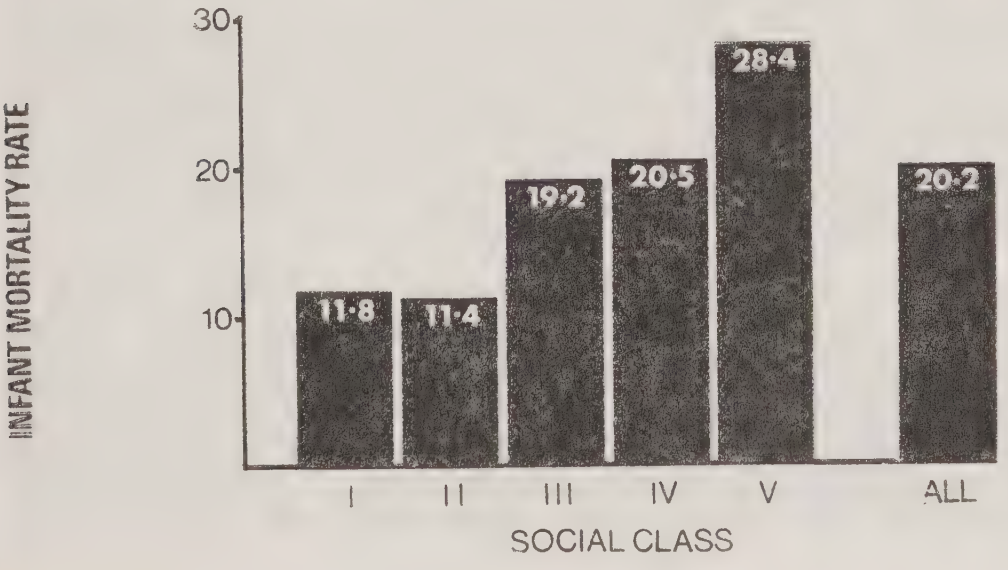
3.2 A useful guide frequently referred to in assessing comparative socioeconomic conditions is the Registrar General's grouping of occupations into social class first introduced in 1911. The social classification currently used is:—

Social Class I	...	Professional, etc occupations
Social Class II	...	Intermediate occupations
Social Class III N	...	Non-manual skilled occupations
Social Class III M	...	Manual skilled occupations
Social Class IV	...	Partly skilled occupations
Social Class V	...	Unskilled occupations

For many years it has been recognised that infant mortality rates vary with social class and that infants whose fathers belong to social classes IV and V have a much greater chance of dying in the first year of life than those whose fathers belong to social classes I and II. The gradient of this risk for infants in Northern Ireland in 1974 is shown in Figure 3. It is interesting to note that if infant mortality rates in social classes I and II had applied to the whole population 245 (44%) of all infant deaths would not have occurred in 1974. Similarly if the postneonatal mortality rates in the same social classes had applied to the whole population, then 123 (68%) of the total of 180 postneonatal deaths would not have occurred.

FIGURE 3

INFANT MORTALITY BY SOCIAL CLASS – NORTHERN IRELAND, 1974



(Wilde, 1977)

3.3 Analyses of infant mortality in Scotland, England and Wales during the last two decades suggest that although there has been a significant overall fall there has been no narrowing of this social class difference (Kincaid, 1965; Chamberlain, 1975; Morris, 1979). The disparity between the social classes has changed little since 1911 but it should be borne in mind that the proportion of the total population in social classes IV and V has declined significantly since then. A persistent and marked difference also exists between the social classes in stillbirth rates and in mortality from some congenital defects, particularly neural tube defects (Office of Health Economics, 1978). Information about trends in Northern Ireland is not available but it is unlikely to be very different.

3.4 Although no data on income by social class are available for recent years it is clear that family income is markedly below the average among social classes IV and V and markedly above it in social classes I and II. It is probable that a greater percentage of the population in Northern Ireland are in social classes IV and V as 73% of heads of households are in manual employment as opposed to 61% in Great Britain.

3.5 It is thought that many of the socioeconomic factors act by reducing birthweight and birthweight is closely related to morbidity and mortality. In general, societies with a high proportion of low birthweight infants tend to have high mortality rates (Alberman, 1977). Amongst the factors which determine birthweight are length of gestation and growth rate in utero, both of which are affected by socioeconomic conditions. The relationship between social class and birthweight is shown below with birthweight tending to decrease through social classes I to V.

Mean Birthweight by Social Class — Northern Ireland, 1974

Social Class	*Mean Birthweight*
I + II	3752 grams
III	3344 grams
IV + V	3285 grams
ALL	3333 grams

(Wilde, 1977)

Standard of Living

3.6 A recently published comprehensive study of comparative poverty shows that Northern Ireland has more of its population in low income groups than any other United Kingdom region (Townsend, 1979). For the purpose of the study low income was defined as net disposable household income below supplementary benefit scales plus 40%. In Northern Ireland 44% of the population was in this category compared to 34% in the next highest region — the North West of England — and an overall United Kingdom figure of 28%.

3.7 The gross average weekly household income in Northern Ireland in the calendar years 1977 and 1978 was £79.73 compared with £99.46 for the United Kingdom as a whole. Of these totals 21.4% was from social security benefits in Northern Ireland compared to 11.6% for the United Kingdom. (Regional Statistics, 1980). Indeed the estimated expenditure per head in Northern Ireland on cash benefits such as unemployment, maternity, supplementary and child benefit and family income supplement, which relate directly

to unemployment, low income and larger families, is significantly higher than in any other region of the United Kingdom (Appendix 4). The prices of many food and manufactured commodities are higher in Northern Ireland and so the average household expenditure on food, clothing and footwear is greater than in Great Britain. Costs of and expenditure on fuel, light and power in the Province are much higher. The increased cost of fuel together with the relatively large proportion of dwellings which have no central heating, particularly in areas where old and poor quality housing predominates, create an additional risk because many bedrooms in which infants spend much of their time are cold and damp.

3.8 Northern Ireland has the highest unemployment rate in the United Kingdom amounting in January 1980 to 11.5% of the insured population (Appendix 5). Within the Province the male unemployment rate is above 20% in parts of Belfast, Cookstown, Dungannon, Newry and Strabane.

Housing

3.9 A further aspect of the relatively worse socioeconomic position of Northern Ireland is poor housing. Following a housing condition survey carried out by the Northern Ireland Housing Executive (1974) it was estimated that almost 20% of the total dwelling stock in the Province was statutorily unfit for human habitation, based on criteria described in the 1956 Northern Ireland Housing Act and amended in the 1971 Housing Act. A further 15% required repair to restore them to a satisfactory condition. The comparable unfitness figure for England in 1976 was 4.6%. The English figure represents a significant improvement since 1971 when it was 7.3%—a figure still well below the latest one for Northern Ireland. Although the results of the 1979 housing condition survey are not yet available, a preliminary analysis indicates that the unfitness rate in Northern Ireland is still running at approximately 15% in spite of recent improvements in the housing stock.

3.10 In Northern Ireland in 1974, 26% of total dwelling stock lacked at least one of the five basic amenities for which standard and improvement grants are normally payable, that is exclusive use to occupiers of a dwelling of a water closet inside the dwelling, a fixed bath or shower, a wash-hand basin, a kitchen sink and a hot and cold water system serving these three points. Four of these amenities were lacking in 22% of dwellings. In England in 1976 the proportion of dwelling stock lacking at least one basic amenity was 16% and only 7% lacked at least four. Important differences exist in the type of amenities which are missing, for instance a full hot and cold water system was lacking in 25% of Northern Ireland dwelling stock in 1974 compared with 7% of total stock in England in 1976. In the same years a fixed bath was lacking in 23% of dwellings in Northern Ireland compared with 5% in England. Preliminary information from the 1979 survey again suggests some improvement in amenity provision but the proportion of dwellings lacking at least one amenity is still about 20%.

3.11 The Belfast Household Survey carried out by the Northern Ireland Housing Executive in 1978 records that 21% of households in the city still lack four basic amenities and these dwellings are, as one would expect, concentrated in the inner city (Northern Ireland Housing Executive, 1978). A proportion of such housing is occupied by families with young children.

3.12 The hazard to health of this large number of sub-standard houses is greatly increased by very frequent overcrowding. The average household size in Northern Ireland, with 2.9 persons, is larger than in Great Britain, with 2.7 persons (Regional Statistics, 1980). In the Province 40% of all households with dependent children have 3 children or more whereas the comparable figure for Great Britain is only 2.5. The higher proportion of large families and households in Northern Ireland contributes to a higher level of overcrowding so that 17% of all households are living in dwellings below the bedroom standard compared to only 6% in Great Britain. The large amount of sub-standard housing and of overcrowding are likely to be major factors leading to a high rate of postneonatal morbidity and mortality from gastroenteritis, upper respiratory tract and other infections.

3.13 Using a definition of housing stress based on households living in sub-standard dwellings, overcrowding and economic disadvantage, the highest incidence of such stress in Northern Ireland is in the Belfast area and the western part of the Province, having 57% and 52% respectively of the households affected by at least one stress factor (Northern Ireland Housing Executive, 1979). These same areas have the highest rates of infant mortality and handicap.

Diet and Nutrition

3.14 Although much has been written about the relationship of diet to birthweight, most of the studies concern small or selected populations. Large scale data show that women in affluent circumstances have bigger babies and fewer perinatal deaths than women in less privileged circumstances. However nutritional variables do not operate in isolation — more affluent mothers tend to have better housing, education and better health. They are inclined to smoke less, lead a less strenuous physical existence, make more use of the health and social services and give more thought to planning their families.

3.15 The most persuasive evidence that diet itself may affect reproductive performance was provided by the 'involuntary feeding experiment' made on a national scale by the United Kingdom during World War II. A food policy which provided extra nourishment and supplements to pregnant and lactating women was accompanied by a steep fall in the perinatal death rate between 1940 and 1948. This occurred at a time of great social upheaval and reduced medical services and it seems likely that the reduction in perinatal mortality was associated with improved maternal nutrition.

3.16 It is difficult to define a good diet particularly as ideas about certain foods tend to change. There is evidence that on average in Northern Ireland an individual eats less non-root vegetables and less fruit than in other parts of the United Kingdom (Wynn and Wynn, 1979).

3.17 The importance of vitamins has recently been highlighted in a preliminary report on a study of women given extra vitamins before and during early pregnancy. The study showed that a group of high risk women, who had previously given birth to one or more infants with neural tube defects and who were given multivitamins before conception and during pregnancy, had a significantly lower recurrence rate of these defects than had a similar group not so treated (Smithells and Sheppard, 1980). If this is confirmed by subsequent studies it could clearly make a significant impact on the incidence of spina bifida and anencephaly.

Smoking

3.18 There is clear epidemiological evidence from a large number of independent studies that women who smoke during pregnancy give birth to babies that are on average lighter in weight than babies of non-smokers. The difference in weight can approach 400 grams (Drumm, 1980). The incidence of premature births in women who smoke is two or three times that for non-smokers (Butler and Alberman, 1969). In addition there is some evidence that smokers more frequently experience spontaneous abortion (Russell and Taylor, 1966) and have a higher risk of giving birth to a dead baby, or to an infant who subsequently dies in the neonatal period. The children of those mothers who smoked during pregnancy still have a demonstrable deficit in their physical and mental development at the age of 7 years (Butler and Goldstein, 1973). Studies of the effects of smoking in pregnancy have taken into account the known association between low birthweight (and subsequent low stature) and social class, and other known interacting factors, so that it can be concluded that it is the smoking itself rather than the type of woman who smokes that is responsible for these effects.

3.19 It has been shown that when both parents smoke the risk of an attack of pneumonia or bronchitis in the first year of the life of their infant is doubled (Colley and Douglas, 1973).

3.20 In Great Britain there is a higher percentage of women smokers in social classes III, 1V and V than in social classes I and II. The proportion of women smokers in the higher social classes has fallen during the past ten years but there has been no comparable fall in social classes IV and V.

3.21 In Northern Ireland a recent survey showed that just under one-third of women are classified as being current cigarette smokers. This is slightly less than in Great Britain. An analysis of these Northern Ireland women smokers by age-group shows however that the prevalence of smoking is highest during the child bearing period, reaching a peak of 41% among women aged 35-44 years. The number of cigarettes smoked by women in child bearing age groups is relatively high with 18% in the age groups 25-34 years and 35-44 years smoking 20 or more cigarettes per day (Appendix 6) (Blaney and MacKenzie, 1978).

Drugs and Alcohol

3.22 Some drugs have a harmful effect on the fetus when taken by a pregnant woman or by one who may become pregnant while taking the drug. They may damage the highly vulnerable, rapidly developing fetal cells and organs in early pregnancy leading to malformations or abortions. Later in pregnancy toxic effects may impair fetal growth or contribute to fetal death or to premature birth.

3.23 There is evidence that excessive drinking in pregnancy damages the fetus (Jones and Smith, 1974) and it has been suggested that the consumption of alcohol reduces birthweight. However there have been no epidemiological studies in the United Kingdom which provide evidence about the effect of moderate drinking on the fetus.

Maternal Age and Parity

3.24 The age of the woman and the number of previous pregnancies are important factors affecting infant mortality. In general the risk is higher at

the extremes of the reproductive age range so that the safest ages for a woman to have children are between 20 and 35 years. The higher relative neonatal mortality rates for babies of mothers aged less than 20 and over 40 years are shown below:

Neonatal Mortality by Maternal Age and Parity: Northern Ireland, 1974

Maternal Age	*Neonatal Mortality Rate*
< 20	20.5
20-40	13.1
40+	14.7
All live births	13.9
Maternal Parity	
0	17.2
1-3	11.3
4+	15.8
All live births	13.9

(Wilde, 1977)

The above figures show that a first baby is at higher than average risk. The risk falls for the second, third and fourth child and then rises with each subsequent pregnancy.

3.25 It is in the age—specific birth-rates that Northern Ireland differs most from other regions of the United Kingdom. In Great Britain the birth-rate in 1977 was 59 live births per 1,000 women aged 15-44 years whilst in Northern Ireland it was 84. The 15-19 age group was the only one in which the Northern Ireland birth-rate was the same as in Great Britain (Appendix 7). Thereafter taking the Great Britain rate as 100 the Northern Ireland rate increasingly diverged as follows:

Age—specific birth-rates: Northern Ireland ratio to Great Britain distribution

	15-19	20-24	25-29	30-34	35-39	40-44
Great Britain	100	100	100	100	100	100
Northern Ireland	100	126	146	175	267	350

(Regional Statistics, 1980)

A higher proportion of women here have children at an older age than women in Great Britain and the average size of family is larger. Eleven per cent of the child-bearing population in Northern Ireland were having their fifth or subsequent child in 1977 compared to only 3% in England and Wales.

Single Mothers

3.26 Several studies have shown that infants born to single mothers are at increased risk of mortality during the first year of life but mortality rates for illegitimate infants are not easily obtained because a proportion of babies born illegitimate, who die in the first year of life, are legitimised before death. In Northern Ireland in 1977 there were 1383 illegitimate births, 5.4% of total live births (Registrar General, Northern Ireland). A special study of neonatal deaths in Northern Ireland in 1974 and 1975 showed that the neonatal mortality rate for infants of single mothers was 26.3 compared to an overall rate of 13.3 (Scott, 1979). A high proportion of illegitimate births are to mothers aged less than 20 years who constitute an at risk group for this reason also. In Northern Ireland 35% of illegitimate live births are to mothers aged less than 20 years compared to 6.5% of legitimate live births. The rate of illegitimate births in Northern Ireland is slightly more than half the rate in the rest of the United Kingdom.

3.27 Problems such as poor financial circumstances and consequent poor accommodation are often exacerbated for the single mother. The sum of £24.75 (including a heating allowance of £1.25) per week, plus rent, is the short term supplementary benefit rate currently available to support a single mother with a child under five years. Such an amount is inadequate. The needs of the single mother are still not being fully recognised by society. It is important that the social services appreciate the number of single mothers who now choose to keep their babies in preference to adoption, and also recognise the implications of providing help and support for the single mother and her child.

Breast Feeding

3.28 There is now considerable evidence on the advantages of breast feeding. These include, in respect of postneonatal morbidity and mortality, a reduced risk of gastroenteritis. Fewer than 20% of all mothers in Northern Ireland in 1978 breast fed their infants and breast feeding was less common in social classes IV and V (Department of Health and Social Services (Northern Ireland), 1978).

Special Social Need

3.29 The 1976 study of areas of special social need in Belfast (Areas of Special Social Need, 1977) demonstrated a close association between a series of indicators of economic and social disadvantage in defined areas of the city. The study used 20 indicators of social need to measure generally accepted aspects of need or disadvantage and 19 social characteristic variables closely interrelated with aspects of social need but which in themselves are not invariably indicative of it. It identified four main components of social need—(a) unemployment — low family income; (b) sub-standard housing — poor physical environment; (c) personal handicap; and (d) educational disadvantage. The study concluded that social need was concentrated in certain electoral wards which had high levels of many indicators of social deprivation. The study was, however, concerned with local areas of multiple deprivation rather than individual households affected by several aspects of disadvantage so that the coincidence of infant mortality with socioeconomic hardship cannot be directly concluded from it.

Civil Disorder

3.30 Although it is difficult to obtain direct evidence it is clear that the continuing civil disorder has affected the family life and health of many young children and their parents. The troubled situation has caused massive population movements and in some areas, especially in Belfast, families have congregated in sub-standard overcrowded housing. The problems of unemployment and consequent low income are obviously exacerabated by the civil strife. It also increases the difficulties in attracting health and social services staff to work in troubled areas. Community staff operating in such areas experience added problems in tracing and providing services for high risk families who change their abode as neighbours may be reluctant to disclose their new whereabouts. As has been pointed out earlier, many of these factors are themselves related to infant mortality and so it seems reasonable to conclude that the civil strife must contribute, albeit indirectly, to Northern Ireland's adverse statistics.

OPPORTUNITIES FOR INTERVENTION

3.31 We believe that prevention of death and handicap begins in the socio-economic sphere and that intervention at an early stage of pregnancy would eventually prove highly cost-effective through the reduction in the number of infant deaths and infants handicapped for life, quite apart from the avoidance of suffering and hardship within families.

3.32 There are opportunities for intervention to reduce the effects of poverty by increasing the level and widening the availability of financial allowances for pregnant women. Some expectant mothers and particularly those at high risk, mainly unmarried women, teenage girls and women in social classes IV and V with large families, are often in great financial difficulties throughout their pregnancy and this income disadvantage seriously affects the baby's future. The current level of maternity grant, which is worth less now in real terms than when it was first introduced in 1911, is insufficient to make any significant difference in these cases. It is not possible to provide the bare essentials for a new baby on £25. There are also some babies born whose mothers do not even get this grant since it is dependent on national insurance contributions. Mothers without such contributions are inevitably among those high risk groups most in need of some financial help. In this connection we welcome the recent announcement by the Government that from 1982 the maternity grant will be paid to all pregnant women irrespective of the level of their national insurance contributions.

3.33 However we contrast the £25 of the maternity grant in the United Kingdom with the grants of £311.75 for a first child, £215.02 for the second and £115.66 for each subsequent child in Belgium, with the £198 pre-natal and £260 post-natal grants in France, and with a grant of £528.62 in Luxembourg (Hansard 29th June, 1979, p.370). In France and Luxembourg the maternity grant is sufficiently rewarding to impose as a condition regular antenatal examinations for women starting in the third month and medical examinations of the child up to two years old. Linking the grant to attendances for examinations thus emphasises the essential need for early and regular antenatal care which, it has been suggested, is an important factor in reducing infant mortality in both countries (Wynn & Wynn, 1979). We believe that this is particularly relevant for high risk women.

3.34 The United Kingdom £25 grant is payable from fourteen weeks before the birth is expected. *We recommend that the maternity grant be increased by a substantial amount and linked in future to the cost of living. In order to encourage early attendance for antenatal care, we further recommend that the increased grant should be payable in four equal instalments upon receipt of certificates of attendance for such care.* Payment should commence with the first visit for antenatal care after confirmation of pregnancy. We wish to make it clear that in suggesting payment of part of the maternity grant at an earlier stage than at present we are not intending that latecomers be penalised financially in any way. Women who attend late for antenatal care should still be entitled to the full grant as they are usually most in need of financial assistance.

3.35 A further financial consideration for working women is the maternity allowance currently amounting to £18.50 a week payable for 18 weeks to women with sufficient paid-up national insurance contributions. There may be an earnings related supplement in some cases. In certain other European countries maternity allowances for employed women are much larger and usually are not for a fixed sum but for a percentage of earnings varying from

80% (Belgium and Italy), to 90% (Denmark, France and Sweden) and to 100% (Luxembourg, Netherlands and West Germany but with a maximum and minimum cash limit in Germany) (Hansard 29th June, 1979). In every case such maternity allowance is paid for a certain period of time, with a statutory minimum number of weeks before confinement. We recognise that the 18 week period of the United Kingdom scheme is slightly longer than the period in many European countries (often 12 or 14 weeks) although we noted payment is for a 7 month period in Sweden. For the future wellbeing of the baby we support the payment of the allowance, starting 11 weeks before the week in which the baby is expected, to encourage the woman to stop work at this time. However, we consider that the period of 6 weeks for which the allowance is payable after confinement should be extended to enable satisfactory arrangements to be made before the mother leaves the baby to return to work. *We recommend therefore that the time during which a maternity allowance is paid to an employed woman be increased accordingly.*

3.36 Almost half of all deaths in the postneonatal period are due to infections. This would indicate that improving the standard of housing, reducing overcrowding where families are large and subsidising the high cost of heating would reduce the infant mortality rate. In this respect we recognise the contribution made by the recently introduced heating allowance for families on supplementary benefits with a child under age five towards reducing the risks for infants in low income families. *We recommend that the Northern Ireland Housing Executive be asked to offer, as a matter of urgency, satisfactory housing to any family with infants who are living in accommodation which is statutorily unfit. It should also be asked to consider the need for providing more homes suitable for large families.*

3.37 We consider that young infants from socially deprived areas are often at particular risk following discharge from hospital. An analysis of the causes of postneonatal mortality showed that of a total of 167 postneonatal deaths in 1977, 77 were caused by infections, of which 60 were from pneumonia. An examination of the health visitors' records for these children suggested that many of them lived in overcrowded and ill-equipped homes. A system which provides continuing care in hospital at birth and then allows some infants to go home to unsatisfactory conditions is not acceptable. We felt that not enough emphasis was put on the importance of trying to ensure that the home conditions, especially in high risk cases, were suitable before discharge of the infant. *We recommend that more positive steps be taken to ensure that home conditions are as satisfactory as possible in all cases before the baby is discharged to the care of its parents. In exceptional circumstances the powers available under Section* 164 *of the Children and Young Persons Act (Northern Ireland)* 1968 *should be used if necessary.* This legislation places a duty on Health and Social Services Boards ". . . to make available such advice, guidance and assistance as may promote the welfare of children by diminishing the need to receive children into or keep them in care . . . " The assistance may include provision in kind or, in exceptional circumstances, in cash.

3.38 It is not only in the socioeconomic and environmental fields that there is a necessity to direct resources to those most in need. People in society who are subject to the greatest socioeconomic disadvantage are usually those in greatest need of health and personal social services but unlikely to make full use of these services. There is scope therefore for concentrating scarce health and personal social services resources on groups most in need or at risk and we shall comment further on this.

4. HEALTH EDUCATION

"The ultimate objective of health education is to help each person make the best possible choice for his or her optimum health and total well-being. It must also seek to influence people to act on the advice and information given, and must seek to counteract pressures which are inimical to health".—Northern Ireland Advisory Committee on Health Education.

4.1 Many people embark on pregnancy and parenthood in a state of comparative ignorance and it is obviously important that there should be an attempt to educate them in all aspects of childbearing. Several groups can be identified as being in particular need of instruction and advice. Of these, children are a group on which the greatest impact can be made.

Extent of Health Education in Schools

4.2 Few detailed surveys of health education in schools have been undertaken and so information is limited. We have, however, drawn on the results of several useful studies carried out in Northern Ireland and whilst they may not give a fully representative picture we are satisfied that they identify clearly areas to which attention must be given.

4.3 Much work is done outside the schoolroom on a less formal basis and tribute must be paid to the endeavours of parents, the Churches, youth leaders, the uniformed organisations and voluntary bodies. All these have an important part to play and should be given encouragement and help perhaps by the provision of joint training schemes or seminars. We welcome the offer from one of the main Churches to extend the role of its youth groups and women's organisations to educate and provide health education about infant mortality matters.

4.4 Whilst we were encouraged by the commendable progress being made in teaching health education in schools we were conscious that a vast amount remains to be done. Indeed a recent survey of the knowledge of reproduction and child care possessed by 2,444 sixteen-year-olds in 167 schools in Northern Ireland (McGuffin, 1980) showed that the mean percentage score on reproduction was 43 with those pupils who had studied biology or home economics scoring significantly higher than those who had not. The mean percentage score on child care was only 30, a figure to cause concern. The survey reveals the paucity of health knowledge amongst sixteen-year-olds and indicates the importance of biology teaching in this context.

4.5 A survey of the teaching of health topics in primary schools took place in 1975 (McGuffin 1976(i), 1977). The principals of one-half (561) of all primary schools were invited to complete a questionnaire and the response rate of 42% meant that about one-fifth of the total number of primary schools participated. The results showed that personal hygiene was discussed in 82%, reproduction in 15% and menstruation in 9% of schools surveyed. Most of the teaching was within the context of other subjects and was carried out by the class teacher. In 17 schools health education was timetabled as a separate subject for Primary 6 and Primary 7 classes. About one-third of schools surveyed used the services of health education officers or health visitors in their teaching. Visits were paid about twice a year and the topics covered were mainly dental health and personal hygiene. In only 10 of these schools were items on smoking and biological development included.

4.6 In March, 1975, the principals of all 255 post-primary schools were invited to complete a questionnaire on current practice in health education; 70 (27%) replied (McGuffin, 1976(ii)). It was found that pupils who studied general science, biology or home economics to General Certificate of Education (G.C.E.) or Certificate of Secondary Education (C.S.E.) level would have had some teaching in reproduction, family life, personal relationships, child care, parenthood, contraception and venereal disease. In most schools the majority of pupils study general science or biology in the 11-14 age range and in this some of the relevant topics would be dealt with at an elementary level.

4.7 Health education has been offered as an examination subject by the Northern Ireland Certificate of Secondary Education Board since 1975 but not by the General Certificate of Education Board. In 1977, 562 pupils from 39 secondary schools entered for the examination. This is a very small proportion as there were 11,776 candidates examined that year. In 1978, 557 out of a total of 11,777 pupils entered for health education, in 1979 the figure was 668 out of 12,472 and in 1980 it had increased to 864 out of a total of 15,915 (about 5%). In addition, a syllabus for a C.S.E. child care course exists as a Mode 3 subject, that is a subject where internal examinations are conducted by individual schools or a group of schools, and are moderated and assessed by the C.S.E. Board. In 1979, 203 pupils entered for the examination and 404 in 1980. It is probable that child care will soon become a Mode 1 subject, that is a subject where external examinations or syllabuses and examination papers are prepared by the C.S.E. Board.

4.8 In 1970 the Schools Council (United Kingdom) set up a Working Party to consider curriculum research and development in health education. As a result two Schools Council Health Education Project (S.C.H.E.P.) schemes are being developed for two age groups—S.C.H.E.P. 5-13 (Johnston, 1978) and S.C.H.E.P. 13-18 (Williams, 1977). The first scheme in which Northern Ireland participated provides teachers' guides and supporting material. The second is being operated on an experimental basis and five Northern Ireland schools are involved. A major dissemination programme has recently been approved which will, over a period of three years, provide all post-primary schools with the opportunity of acquiring training in curriculum review and programme design in health education.

4.9 Courses organised by Health and Social Services Board Health Education Departments in conjunction with health visitors and home economics teachers are available in a number of post-primary schools in some areas. They lead to the award of certificates in child care by the St. John Ambulance.

4.10 We feel that pupils should be given adequate knowledge and the necessary decision-making skills to enable them to establish a "healthy" lifestyle. In addition, having regard to the influence of parents on the health behaviour of their offspring, we are convinced that preparation for parenthood must be seen as an important element in health education.

4.11 Considering that the highest infant mortality and handicap rates occur in social classes IV and V, we must emphasise the importance of health education generally and of preparation for parenthood in particular for children from deprived homes while still attending school. An experimental scheme on Social Education has recently been established in one large comprehensive school in Belfast and this scheme should be kept under review as

it seems to have the potential to provide a major opportunity to increase the amount of health education taught to children living in socially deprived areas.

4.12 The basic health education programme in schools should include the following items—human reproduction and development, personal health practices, interpersonal relationships, preparation for parenthood, child care, home management, family planning and dental health. Within these there are two vitally important matters related to the reduction of infant mortality and handicap, namely the need for immunisation against rubella at age 11-13 and the desirability of early and regular attendance for antenatal care.

4.13 We are in full agreement that in schools the best people to undertake health education are the teachers. However from evidence received it is clear that student teachers receive little training in health topics unless they study health education as a special subject or follow the home economics or physical education course. This should be reviewed as a matter of urgency since much faith is placed in the value of health education presented by teachers.

4.14 For some topics use should be made of a health visitor, a school doctor, or a speaker from the family planning service to make an "expert" contribution. Health professionals could also collaborate with teachers in designing courses. School nurses, with appropriate training, could make an increased contribution to health education on a one-to-one basis.

4.15 It is recognised that the problems of providing a fully planned and co-ordinated programme for all pupils in schools include making time in an already crowded curriculum for what is largely a non-examination subject and finding staff who are trained to teach health topics. Nevertheless it is essential that the problems are overcome and *we recommend that health education should be an integral part of the school curriculum of all children.*

4.16 There is a desire amongst teaching and health staff to co-operate in this work. In October, 1978, the Department of Education, the Department of Health and Social Services and the Health Education Council jointly sponsored a conference on health education which was attended by staff in the teaching and health professions (Department of Education (Northern Ireland), 1978). The conference strongly advised co-operation and consultation between the Education and Health Services at departmental, board and individual school level. It further advised the designation of a senior member of staff in each school as co-ordinator for health education, and the provision of pre-service and in-service training for teachers and for health service personnel who would be involved in the programmes. Since then some improvement has been seen but a clearer recognition at all levels, beginning at the top, of the importance and potential of health education in the basic teaching of each child is needed and also a commitment on the part of the Departments of Education and Health and Social Services to initiate appropriate policy. We agree that for too long health education has been everybody's business but no one's responsibility.

4.17 In order to demonstrate our strong support for and to add our weight to the sentiments which emerged from this conference *we recommend that*:

(a) *a senior teacher who is interested in health education should be designated in each school to co-ordinate the health education programme;*

(b) *in formulating recommendations for health education in schools, the Department of Education should be helped by advice from the Department of Health and Social Services; and*

(c) *pre-service courses in health education should be provided for all teachers and in-service courses introduced particularly designed to train school co-ordinators.*

Family Planning

4.18 Ideally this service should provide all persons with basic information about having a family, for example, that the least safe times are when the mother is under 20 and over 35 years and that the mother's health and energy and the children's development will be much better if the pregnancies are reasonably spaced. It should also offer acceptable fertility control advice and methods to enable couples to have the size of family they want, with the children arriving at optimum times. In these ideal circumstances every child would be a wanted child, born during its mother's most favourable child-bearing years and this would make a large contribution to the reduction of infant mortality and handicap.

4.19 We are aware that family planning is a very sensitive, personal subject and that for reasons which range from medical through religious and cultural to aesthetic, all methods of birth control are not acceptable to all members of the community. A good service will take this into account and provide sympathetic, comprehensive, individual advice for each client.

4.20 Family planning guidance can be obtained from several sources. Most general medical practitioners are on the local family planning list. Each Health and Social Services Board has a number of community family planning clinics, some general and some specialised, for example, dealing with intrauterine devices or psychosexual problems. All are free and are staffed by specially trained doctors and nurses. There are evening clinics for the convenience of people who work during the day, but not all districts have this facility because of the problems of civil disturbance. Many of the community clinics were started by the Family Planning Association but since 1976 all have become the responsibility of Health and Social Services Boards. The Family Planning Association continues to develop its educational role in providing training courses. Some maternity units have family planning clinics which may be run in conjunction with their postnatal clinics. In addition to the formal clinics a great amount of family planning information and education is given by health visitors when they see new mothers at home and at child health clinics. Midwives may discuss family planning with patients at antenatal clinics or during domiciliary visits. Many obstetric units provide opportunities in the puerperium for mothers to discuss family planning, singly or in groups, and the subject is raised at postnatal examinations in hospital and in general practice.

4.21 All medical students, trainee general medical practitioners, student nurses and midwives, trainee health visitors and social work students get some teaching in family planning and the services available. The public are dependent for information about clinics on health and social services staff, neighbours, the telephone directory and posters. Lists of clinics may be obtained from Health and Social Services Boards and may also be displayed in health centres, doctors' surgeries, waiting rooms and community clinics. The majority are listed in the telephone directory.

4.22 Although family planning advice is available throughout the Province it does not always reach those who need it most. *We recommend therefore that the service should be more widely publicised. We recommend also that all maternity units should provide family planning advice in the post-natal period to be augmented by general practitioners, community midwives and health visitors when the mother is discharged from hospital.*

4.23 Some mothers are in particular need of advice, for example, teenage mothers, those aged 35 and over, those with considerable social problems and those who have had a handicapped child. *We recommend that women in special need of family planning advice should be identified and offered more positive help.* Some could be identified as at risk in hospital obstetric units and special efforts made to see that continuing advice is available to them on discharge from hospital.

4.24 There is no domiciliary family planning service in Northern Ireland. The Court Report (H.M.S.O., 1977) indicated that most major cities in Great Britain provide a domiciliary service with the aim of bringing family planning to a group who either could not or would not come to clinics or to their own doctors for various reasons. We looked at the Glasgow Family Planning Scheme which, it was suggested, had contributed to a reduction in infant mortality in social classes IV and V since its inception 10 years ago. It operates in the homes of very deprived women (Wilson, 1971). Glasgow and Belfast have similar social characteristics and problems and *we therefore recommend that the need for a domiciliary family planning service should be examined and as a first step the feasibility of running a pilot scheme in one district in Belfast should be investigated.*

The Antenatal Period

4.25 During pregnancy women may be more likely to seek, accept and act upon advice, realising that two lives and futures are at stake, but unfortunately there is a lack of health education for women early in pregnancy. General advice is given during antenatal visits to the family doctor and hospital clinics but there is not sufficient time to discuss in any detail topics like avoidance of drugs, diet in pregnancy, dental care, smoking, alcohol, growth of the fetus, breast feeding, preparations for the baby, labour, the emotional and physical effects of having a baby and immunisation. Information on all of these subjects would be of great value to both prospective parents.

4.26 Teaching on important topics should be included in parentcraft (sometimes termed antenatal or mothercraft) classes which are held in many maternity hospitals and health centres in the Province. The content of the classes varies but in general midwives, health visitors and physiotherapists join forces to prepare pregnant women for labour and for the early care of the baby. Advice is given on matters such as welfare, diet, personal hygiene and dental care, and appropriate films may be shown.

4.27 However only a proportion of women, usually in their first pregnancies, are invited to such classes. These are not normally offered until about the 28th week of pregnancy and attendances are often poor and many of those in need do not attend. In a survey of 51 women who attended parentcraft classes in Dungannon, 42 belonged to social classes I, II and III and only 3 to social classes IV and V; the category of the 6 others was not known. A further research study into reasons for non-attendance is currently being carried out. Very few courses include sessions for husbands.

4.28 *We recommend that more parentcraft classes should be provided to cater for all women in their first pregnancy and those in subsequent pregnancies who need to attend.* Consideration should be given to commencing the classes much earlier in pregnancy, providing more opportunity for husbands to attend at least some of the sessions and to continuing the classes beyond the birth of the baby.

4.29 As not all women would be able to attend parentcraft classes there will be a continuing need for community midwives to give health education advice in the home. Unfortunately the amount of home visiting of antenatal patients by midwives is very small. A survey in the Western Board showed that only 15-20% of a district midwife's time was spent in antenatal home visits. Overall, there are very few community midwifery posts; most still combine midwifery with district nursing leaving little time for non-acute measures. The policy is to separate these functions particularly in urban areas but this is happening slowly. Midwives are keen to increase their educative role in the antenatal period and hope that more of their time will be spent in the patient's home. Health visitors feel that, as their role includes health education to the whole family, they too have an important place in antenatal education.

The First Year of Life

4.30 Parents of very young children require basic knowledge about infant feeding, childhood illness and its early signs, immunisation, safety in the home, child development and family planning. Some may require genetic counselling. The health visitor has a vital part to play in the promotion of health during the first year. She first sees the new baby at home around the 10th day following birth and maintains contact with the family, assessing, advising, screening, teaching, supporting and making referrals to other personnel as necessary. This input, as well as being educative, can contribute to the reduction of postneonatal deaths and to the early detection of handicap. A small survey of consumer attitudes to health visiting carried out in Northern Ireland (Orr, 1980) amongst a group of 68 mothers in social classes IV and V showed that the service was welcomed by the majority. The main functions of the health visitor were seen as advising on child care and some family problems, and the survey showed that mothers would welcome more visiting during the first three months and more help with practical problems.

4.31 There is a shortage of health visitors in Northern Ireland, as in many other parts of the United Kingdom, and sufficient numbers are not available to give the optimum level of advice and support to parents. The shortage is most serious in areas of greatest need and methods of attracting staff to these areas should continue to be examined. Sufficient numbers are unlikely to be available for several years and so the existing health visitors should be encouraged to concentrate their skills on mothers and young children. The responsibility of the health visitor is expanding to the detriment of this priority group. *We recommend that the care of mothers and young children should be reaffirmed as a priority of health visitors.*

4.32 Because of their close contact with parents and infants, health visitors have a unique opportunity to play an increased role in the provision of health education. *A health visitor with a reduced caseload could, in conjunction with the Area Health Education Officer, develop a special interest in organising health education within a District and we recommend that consideration should be given to this suggestion.*

4.33 There are child health clinics in all Districts providing either formal or informal health education, developmental screening, advice and immunisation. However, full developmental screening is not yet operational on a Provincial basis partly because of the shortage of clinical medical officers in some areas. The clinics are staffed by health visitors and clinical medical officers, where available. Mothers may or may not see the same health visitor as the one who calls at home, depending on whether the health visitor is practice-attached or geographically based. It is desirable that where possible the same health visitor should attend the family both at home and at the clinic. Some general practitioners provide baby clinics within their own practices and therefore have the opportunity to see their healthy small patients in addition to those who have health problems. The health visitor attached to the practice is usually in attendance.

4.34 Since the reorganisation of the Health Services in 1973, the lack of career structure has inhibited the recruitment of clinical medical officers on a full-time basis. The general shortage of these medical officers throughout the Province has restricted programmes of immunisation and progress in modern paediatric screening techniques. Recruitment recently has been encouraging and while some training has been made available more emphasis needs to be attached to the training aspect. *We recommend that further consideration should be given to the career structure and postgraduate education and training of clinical medical officers and to ways of attracting more full-time doctors to this work.* Attempts should also be made to encourage general practitioners with paediatric training to interest themselves in this work either on a sessional basis with Health and Social Services Boards or within their own practices.

Knowledge of Health Education amongst Trained Personnel

4.35 Health education is taught to most health and social services professional personnel during their training, but there is little doubt that the teaching is uneven and the amount does not always reflect the importance of the subject. Generally students are taught along curative or diagnostic rather than preventive lines. *We recommend that current training programmes for all health and social services personnel should be examined and steps taken to ensure that health education is given its proper place.* Consideration should also be given to providing appropriate training for other persons involved in health education.

4.36 It is encouraging to find that health education is included in many courses at colleges of further education, for example, Pre-Nursing, Certificate of Social Service, Medical Receptionists, Secretarial, Care of the Young Child, Hairdressing and Preliminary Residential Care courses.

4.37 Groups such as Supplementary Benefit Officers, Education Welfare Officers and Clergymen attending classes at the Department of Extra Mural Studies at Queen's University, Belfast, are taught basic facts about infant mortality and handicap and should know where to refer people with problems.

Methods of Health Education

4.38 It is essential to remember that there is a wide range of intelligence and literacy in the population and that health education must therefore be aimed at more than one level. A survey of a 1 in 12 sample of all 15-year-olds in Northern Ireland in 1976 (Wilson, 1977) showed that 18% had a reading age of less than 11 years and 9% were below the 9 year level. This low

literacy group would derive little benefit from any but the simplest message and would have little competence at complying with written instructions. *We recommend that health educators should be made aware of the low literacy level of some groups and that they should make use of posters, sketches and cartoons to put across simple information, advice or warnings. In general, leaflets and booklets on particular topics can be very useful but should mainly be used to augment and not replace the spoken word.*

4.39 Use should be made of all available methods of reaching target groups. In this context the part employers of women could play should not be overlooked. Our attention was drawn to a scheme in Scotland where the management of a factory, realising the importance of antenatal care, made it possible for female employees to have extra concessions during pregnancy. On notifying the factory nurse of their pregnancy, women were issued with a card which enabled them to have paid time off to attend antenatal clinics, to have a free pint of milk per day at the staff canteen and to leave work early each evening to avoid the crowds. This sort of enterprise is commendable. *We recommend that employers of women should be encouraged to promote health education amongst their staff and to ensure that provision is made to enable all pregnant women to attend for antenatal care.* We are pleased to note that the Government is considering legislating for this purpose.

4.40 We met representatives from press, radio and television who expressed considerable interest in the problem of infant mortality and handicap and the part they could play in promoting the health education message. Steps have already been taken by the Department of Health and Social Services in conjunction with Health and Social Services Boards to take advantage of the generous offers of publicity for the health education message as it relates to infant mortality. We confidently expect to see a noticeable increase in the amount of publicity given to this problem by the media, particularly in the months immediately following the publication of this Report.

Comment

4.41 Because it is practically impossible to forecast its effects with any great certainty, health education has been described as an act of faith. We have, however, seen major improvements—admittedly over a considerable period of time—in the behaviour of the population as a result of the lengthy campaign to reduce smoking. In addition, the number of joggers that can now be seen on the move and the widespread use of the ever increasing number of leisure centres bear witness to the success of health education efforts to convince people of the need to take more exercise. We are convinced that infant mortality is another area in which health education can have a major effect and that it is one in which Government must place its faith and invest its resources.

5. GENETIC COUNSELLING AND SCREENING

5.1 Some of the commonly occurring birth impairments are described in Appendix 8 and the frequency of congenital malformations and genetic disease per 1,000 total births for Northern Ireland is listed in Appendix 9.

5.2 Many diseases which impose a burden on the health and social services are due, at least in part, to genetic causes. With the steady decline in infant mortality over the past 70 years, congenital abnormalities, which at the beginning of the century, accounted for about 5%, now account for at least 30% of infant deaths. With the increasingly successful control of diseases of environmental origin, disorders wholly or in large part genetically determined, have assumed growing importance in the pattern of childhood morbidity and mortality, accounting for as much as a fifth of paediatric admissions to hospital and for a significant proportion of childhood deaths and mental and physical handicaps. A recent Medical Research Council, London, report (1978) stated:—

> "Handicaps due to a genetic disorder or congenital malformation are the major child health problem today, and the overall burden placed on the health, social, and educational services in providing for these often severely disadvantaged children and adults is a heavy one."

5.3 Abnormalities which are present at birth may be due to environmental factors, such as drugs, excessive radiation or intrauterine infections, to genetic factors, such as gene or chromosomal defects, or to the interaction of environmental and genetic factors. In Northern Ireland several of these genetic and partly genetic conditions are of particular importance. Spina bifida and related abnormalities of the central nervous system are a major problem. Their incidence in Northern Ireland is the highest in the world being 8.4 per 1,000 total births.

5.4 Little is known about the reasons for the higher rates of many congenital abnormalities in Northern Ireland and they may be related simply to the genetic stock of the population. Research and epidemiological evidence suggest that a large proportion of the common abnormalities, for example, anencephalus, spina bifida and cleft lip/palate may be the result of environmental factors acting on genetically vulnerable individuals (Office of Health Economics, 1978).

5.5 Many genetic disorders are serious and, with few exceptions, there is no effective treatment. Thus, the only approach to such conditions is prevention. Many techniques are available already which could substantially reduce this burden of disease. These techniques include genetic counselling, genetic screening, carrier detection, and prenatal diagnosis with selective termination of pregnancy. However, as with the problem of nutrition and infection in developing countries, an application gap exists between what is known and what is being done in the prevention of genetic disease and congenital abnormalities.

Effectiveness of Preventive Measures

5.6 It is possible to estimate what effect preventive measures might have on the incidence of genetic diseases and congenital abnormalities. Genetic counselling can be either retrospective (after the birth of an affected child) or prospective (before the birth of an affected child where there is a family history of hereditary disorder). Assuming most parents have two or three children, some 40% of disorders due to a single gene defect could be prevented by

genetic counselling and antenatal diagnosis. About 250 children are born every year in Northern Ireland with a disorder due to a major gene defect such as cystic fibrosis of the pancreas, phenylketonuria, or Duchenne muscular dystrophy, and it has been estimated that approximately one-third of such disorders could be prevented.

5.7 In the case of families who have had children with chromosomal abnormalities, such as Down's Syndrome, and multifactorial conditions, such as congenital heart disease, about 30% of further similar conditions are preventable by counselling these parents.

5.8 Genetic counselling and prenatal diagnosis is important in preventing spina bifida and related central nervous system abnormalities, and theoretically could reduce the incidence by approximately 10%, that is, by 25 cases per year. Screening for neural tube defects by estimation of maternal serum alphafetoprotein provides an approach for reducing dramatically the incidence of central nervous system malformations. Further screening by examination of amniotic fluid from patients at highest risk between 16-18 weeks gestation will permit the detection of nearly 90% of fetuses with anencephaly and almost 80% of cases of open spina bifida. The Working Group on Screening for Neural Tube Defects (1979) reported that antenatal screening for open neural tube defects has been successfully established in several areas of the United Kingdom. They conclude that it is highly probable that a screening programme will reduce the number of severely disabled children who survive for a significant length of time. However there are complex medical and ethical issues involved in setting up a routine screening programme. The report draws attention to the necessity to ensure that a full explanation of the screening programme and of the significance of the tests is given to parents. It also refers to the need to give women the opportunity to decide whether they wish to have the test, that is to "opt in". Explanation should be given by both direct counselling and by using leaflets.

Existing Services

5.9 The current services in Northern Ireland for genetic counselling and screening and for prenatal diagnosis by amniocentesis have developed in an ad hoc fashion as elsewhere. The existing needs of the community are not being fully met and facilities for the present and the immediate future are inadequate. It is essential to have a comprehensive genetic advisory service which includes provision for appropriate back-up services such as laboratory facilities, health visitors, midwives, social workers and family planning advisers, and the collaboration of general practitioners and consultants in relevant specialties.

Genetic Counselling

5.10 In genetic counselling potential parents are advised on the nature and prognosis of the disorder, the availability of effective treatment, the risks of recurrence, and the various options open to them if they decide the risks are unacceptable. The first genetic counselling clinic in the United Kingdom was established under the auspices of the Institute of Child Health at the Hospital for Sick Children in London in 1946. Gradually other genetic counselling clinics were established in London and at most of the major medical centres throughout the United Kingdom.

5.11 In October, 1967, with the establishment of a Joint Appointment Lecturer post in Human Genetics, genetic counselling clinics were established in Belfast. Since then due to the growing demand for this service, the number

of genetic counselling sessions has increased to about 25 a month. Apart from one monthly session at Altnagelvin Hospital, Londonderry, all clinics are held at hospitals on the Royal Victoria Hospital site.

5.12 About 6-8 families attend each genetic counselling session. Where necessary relatives of these families are visited in the community by the health visitor attached to the genetic counselling clinics. Some 6,000 families with genetic disorders and congenital abnormalities have been seen since 1967. Ad hoc studies of high risk families, that is, where the risk of a second abnormal child is greater than 1 in 10, showed that following genetic counselling 60% did not have further children. Of those who proceeded to have further children follow-up showed that approximately 1 in every 5 of such children were abnormal.

5.13 *We recommend that genetic counselling should continue to be organised on a regional basis and linked closely with other regional genetic advisory services in the United Kingdom.* The service must centre on the medical geneticist and he should be involved in the planning and monitoring of a comprehensive clinical genetics service. The Medical Research Council/ Department of Health and Social Security Working Group on Genetic Counselling and Service Implications of Clinical Genetic Research has suggested that a population of $1\frac{1}{2}$ million should have the equivalent of 11 clinical consultant geneticist sessions used largely for counselling. *At present* $6\frac{1}{2}$ *sessions are available in Northern Ireland for this purpose and we recommend that provision be made for additional sessions and that the necessary ancillary staff should be made available.*

5.14 The provision of medical training posts in genetics is necessary in order that future genetic counsellors can be trained in this specialty. The Clinical Genetics Society has recommended to the Department of Health and Social Security that each region should have 2 consultants in medical genetics. A postgraduate training programme for Medical Geneticists has been established in Great Britain and is administered by a Medical Genetic Sub-Committee of the Paediatric Specialists Advisory Committee. Indeed, in this connection 7 Senior Registrar posts in Medical Genetics have been established (4 in England, 2 in Scotland, and 1 in Wales). In Northern Ireland there are no medical training posts in genetics. It is important that Northern Ireland does not lag behind the rest of the United Kingdom *and we recommend the establishment of a Senior Registrar post in Medical Genetics.*

Diagnostic Laboratory Services

5.15 An integral part of genetic counselling is the medical genetic laboratory for the chromosome analysis of blood and other tissue samples of patients with mental handicap and congenital abnormalities. Investigations include cytogenetic analysis of blood, bone marrow, skin tissue, and amniotic fluid cells. In 1978, some 2,500 tests were carried out and this had increased to almost 4,000 in 1979. All hospitals and family doctors have referral facilities. Recently, it has become clear that certain hospital services need to make greater use of cytogenetic analysis. For example, cytogenetic analysis should be an integral part of the assessment of every mentally handicapped child.

5.16 The medical genetic laboratory occupies limited accommodation in the Department of Anatomy, Queen's University, having started as a research project. Although it has now developed into a regional service no laboratory

accommodation is provided by the Health and Social Services. *We recommend that a suitable laboratory be provided if necessary in temporary accommodation until arrangements can be made for permanent laboratory accommodation.*

Antenatal Diagnosis of Congenital Abnormalities

5.17 Antenatal diagnosis and selective termination of pregnancy have been major developments of medical genetics. Antenatal diagnosis by means of amniocentesis in the second trimester followed by the appropriate cytogenetic or biochemical tests allows the detection of all chromosome abnormalities, almost all open neural tube defects (spina bifida/anencephaly), and about 60 types of inborn error of metabolism. With the development of more precise ultrasonic scanning, fetoscopy, and sampling of fetal blood and other tissues, it will be possible to detect a variety of other conditions. Since 1970, there has been a joint genetic/obstetric clinic in the Royal Maternity Hospital with a medical geneticist and a consultant obstetrician in attendance. A few samples are also received each year from Belfast City, Ulster and Altnagelvin hospitals. The demand for this service has increased dramatically and about 450 patients underwent amniocentesis in 1979.

5.18 The facilities for antenatal diagnosis should be available to cope with approximately 8% of all pregnancies (Clinical Genetics Society, 1978) that is, just over 2,000 pregnancies in Northern Ireland each year. At present the service is dealing with less than one-fifth of these high risk pregnancies. The majority of these are identified as being at risk of fetal chromosomal abnormalities or fetal neural tube defects.

5.19 There is a need for considerable expansion of the present antenatal genetic diagnostic service accompanied by adequate quality control. The expanded service should include obstetricians experienced in the techniques of early amniocentesis and other invasive and non-invasive techniques, ultrasound equipment, laboratory personnel skilled in amniotic cell chromosome techniques and health visitors or midwives trained in ante- and post- amniocentesis counselling and support. *We recommend the provision of the necessary staff, facilities and equipment to meet the known needs of the community.*

5.20 We consider that in Northern Ireland, antenatal diagnosis should be developed in only a few centres initially. Indeed adequate attention must be given to the necessary requirements in terms of obstetric staff, equipment, and laboratory back-up, before developing even a second genetic/obstetric clinic.

Screening for Neural Tube Defects

5.21 Serum alphafetoprotein screening for the detection of women at risk of carrying a fetus with a neural tube defect is at present only available to a limited extent in Northern Ireland. The extremely high incidence of open neural tube defects in the Province is an important factor behind our recommendation *that urgent consideration should be given to introducing a voluntary ("opting in") antenatal screening programme for neural tube defects.* This would require adequate clinical, ultrasound and laboratory facilities as outlined in the Report of the Working Group on Neural Tube Defects (1979). It is important that the effects of the screening programme should be carefully monitored.

Examination of the Newborn

5.22 Routine paediatric examination of the newborn as soon as possible after birth is important in the prevention of severe physical and mental handi-

cap. In many situations early recognition leading to earlier treatment results in a more favourable outcome. This is particularly true of congenital heart disease and congenital dislocation of the hip. In order to detect congenital malformations due to genetic disorder *we recommend that all infants should have a detailed examination by a doctor, preferably with paediatric or obstetric training, within the first ten days of life.* Details of this examination should be documented. Only in this way can children with defects be identified and notified early to the appropriate specialist service.

Screening of the Newborn

5.23 The aim of biochemical screening in the newborn is the early detection of disorders associated with severe mental handicap so that immediate treatment for these conditions can be initiated. Whole population screening is being carried out for phenylketonuria and about five or six children are detected each year in Northern Ireland.

5.24 Congenital hypothyroidism which also is associated with mental retardation occurs in approximately one in 5,000 births. At an early stage in our deliberations we were asked by the Central Medical Advisory Committee to examine proposals from the Department of Biochemistry, Royal Victoria Hospital, for the establishment of a screening service for congenital hypothyroidism in the Province. These proposals suggested the extension of the well established mechanism for collecting blood spots for phenylketonuria screening to provide screening for thyroid disorders in the same infants. Screening could then be carried out in the early days of life and treatment started without delay as permanent damage to the brain and mental retardation are likely to result if treatment does not begin before the age of three months. Although the effects of thyroid hormone treatment begun before one month of age have yet to be fully ascertained, it is anticipated that the results will be at least as good as those of treatment begun before three months of age. Seventy eight per cent of infants diagnosed before the age of three months and given suitable treatment are shown to have an intelligence quotient above 85 when subsequently tested (Klein, 1973).

5.25 We were most impressed with the proposals which could lead to the detection each year in Northern Ireland of 5 or 6 infants with congenital hypothyroidism. We therefore made an interim recommendation to the Department of Health and Social Services that screening for congenital hypothyroidism should be introduced as soon as possible. We are pleased to note that since 1st January, 1980, this recommendation has been implemented and a screening service is now available throughout Northern Ireland.

5.26 Biochemical tests for other disorders should be introduced if reliable methods of detection become available. Population screening for cystic fibrosis of the pancreas—occurring in 1 in 1,800 births—is urgently needed but there is at present no satisfactory method of detection. The early diagnosis of Duchenne muscular dystrophy is the subject of research. There is no effective treatment and prevention is through genetic counselling. In practice a proportion of avoidable cases will be brothers of affected boys but some of these are conceived before the first is diagnosed and it is this group that the screening procedures aim to intercept before conception or birth. Hopefully satisfactory screening tests will soon be found for cystic fibrosis and Duchenne muscular dystrophy. Research into these disorders should be kept under review.

Genetic Registers

5.27 Monitoring of birth defects presumes that early detection of changes in frequency will lead to epidemiological investigations and prompt identification of the aetiological agents. In the years intervening since the thalidomide tragedy, monitoring of congenital abnormalities has been implemented in a number of countries as a precautionary measure against other environmentally caused epidemics of birth defects.

5.28 Since 1971 in Northern Ireland two systems for recording congenital malformations have been run in parallel—the Registrar General's Congenital Malformation Notification, which registers, at birth, infants with malformations and the Child Health Record System, which records information on all births. Recently, the ascertainment of congenital malformations by the Genetic Counselling Service has been linked to these systems which are suitable for monitoring congenital malformations. Northern Ireland is a member of the International Clearinghouse for the Monitoring of Birth Defects and of the European Congenital Abnormality and Twin Study (EUROCAT).

5.29 The Working Party of the Clinical Genetics Society proposed in 1978 that Genetic Registers should be set up for the express purpose of tracing, following up and counselling individuals who are at high risk (greater than 1 in 10) of transmitting a serious genetic disorder to their offspring. The object is to ensure that such individuals are informed of the risks and the various options available to them. The Working Party suggested that the registers should be organised on a regional basis and should be located in the Regional Genetic Advisory Centre. In establishing a Regional Genetic Register, provision needs to be made for a mini-computer to be located in the Genetic Centre and for supporting staff. Strict safeguards for confidentiality must be incorporated with personal medical information accessible only to the consultant in charge of the Register. A prototype system already exists in Northern Ireland, which has been recognised internationally, *and we recommend that it be developed to provide a comprehensive genetic register.*

Publicity for Genetic Advisory Service

5.30 Many parents at risk of having abnormal offspring are not aware of the existing genetic advisory service and some health and social services staff need to improve their knowledge of it. *We recommend that a booklet on the facilities of the service should be produced* for distribution to all staff concerned in antenatal care and wellbeing, and to voluntary bodies dealing with specific handicaps. Indeed medical staff in charge of family planning clinics should have a sound knowledge of basic genetics as immediate direct referral of patients to the genetic advisory service could be of paramount importance.

6. ANTENATAL CARE

6.1 There is no doubt that infant mortality and handicap can be further reduced by an improvement in antenatal care. To achieve this it will be necessary to balance the interrelated services in the community and hospital to give satisfactory care, especially to those at high risk. It is essential that these services should function as a single organisation having the closest working relations and optimum communications between all staff involved in antenatal care. This should include the development of facilities acceptable to patients and professionals but at a cost that Government and the community are willing to afford.

6.2 Good antenatal care requires early and thorough examination which should be repeated regularly throughout pregnancy, pre-symtomatic screening for disease, management of identified abnormal conditions, and social and economic assessments. As previously mentioned the main causes of infant mortality and handicap are low birthweight, congenital malformations, hypoxia and infections. The objectives of antenatal care should therefore be to detect a fetus at risk because of a hostile intrauterine environment, to reduce the number of infants born with congenital defects, to try to inhibit premature labour, and to avoid intrapartum fetal anoxia and trauma. *We recommend therefore that every effort should be made to encourage early diagnosis of pregnancy, early referral to and booking at hospital, and adequate antenatal supervision of the patient.*

6.3 Some of the high risk factors (not in order of priority) in women contributing to morbidity and mortality in infants are listed below (major adapted extract from Wigglesworth, 1968):—

- Family history of serious hereditary and familial abnormalities.
- Significant congenital anomalies affecting the central nervous system —heart, lungs, skeletal system, blood dyscrasias.
- Teratogenic viral illnesses in the first trimester.
- History of pre-term birth or small-for-dates birth in previous pregnancies.
- Long delayed or absent antenatal care.
- Age under 15 or over 35 years.
- Height under 60 inches.
- A fifth or subsequent pregnancy especially when aged over 35 years.
- Another pregnancy within 3 months of previous one.
- History of infertility and/or essential drug or hormone treatment.
- Stressful events, for example, mental or other severe illness, hyperemesis gravidarum, anaesthesia, shock, critical accidents and bleeding in the antenatal period.
- Heavy smoking.
- Obstetric complications past or present including abnormal presentations, pre-eclampsia, hypertension, polyhydramnios, etc.
- Multiple pregnancy.
- A fetus which fails to grow normally or is not commensurate with maturity.
- Minimal or no weight gain, or excess weight gain.
- A fetus over 42 weeks gestational age.
- Low socioeconomic groups.
- Unmarried or single parent.
- Obesity.
- History of medical or surgical disability.

According to Wigglesworth between 10% and 20% of women fall into these groupings and account for about half the fetal and neonatal deaths. However in Northern Ireland, because of the much higher proportion of child-bearing women in the lower socioeconomic groups and the higher percentage of women who have large families and of women who become pregnant over age 35, we consider that the number here in high risk groupings would exceed 20%.

6.4 At present care of the pregnant patient is usually provided in one of three ways :—

- — Through total care by the general medical practitioner and midwife throughout pregnancy with confinement in a general practitioner hospital maternity unit. All these units should have a declared booking policy supervised by an obstetric house committee. *We recommend that high risk patients should not be booked for confinement in general practitioner units.*
- — Through shared care whereby the patient is referred to the consultant obstetrician by the general practitioner, booked for confinement in a consultant hospital maternity unit and seen at suitable intervals during pregnancy by the general practitioner or hospital doctor. Such patients should normally be seen at the hospital clinic as early as possible and at 32 and 37 weeks gestation should the pregnancy remain normal. They should be seen again by the consultant if the pregnancy persists longer than 41 weeks. Arrangements should of course always exist for the transfer to total consulant care of patients found to be in the high risk category later in pregnancy.
- — Through total care by the consultant who, on initial referral by the general practitioner, undertakes the complete supervision of the patient for antenatal care and confinement. This is almost always the provision for the high risk patient or for patients whose general practitioners do not provide maternity care.

Almost all maternity patients are reasonably well served by these provisions but special attention must be paid to high risk patients who come late in pregnancy for care or are poor attenders at antenatal clinics. Some of these women may require domiciliary antenatal supervision.

Community Antenatal Services

6.5 All members of the primary care team—the general medical practitioner, midwife or district nurse/midwife, health visitor and social worker—have an important part to play in the surveillance of the antenatal patient. Whilst such teams may not exist everywhere or may still be in the early stages of development we consider this approach to be the best method of providing good community antenatal care.

The General Practitioner

6.6 The general practitioner and his surgery premises have traditionally been the focal point for supervision of the pregnant patient. A high standard of obstetric practice has been required from family doctors over the years. At present those wishing to provide maternity care have to comply with the training and experience requirements laid down by the Obstetric Committee of the Department of Health and Social Services if they are to be admitted to and remain on the obstetric list. Appendix 10 shows that following the obstetric list revision in 1979 there still remains an adequate number of family doctors suitably spread throughout the Province to provide obstetric care.

Evidence revealed that some young doctors entering general practice, although adequately trained, are not interested in practising obstetrics or applying for inclusion on the obstetric list. Their lack of interest is due perhaps to frustration as so many are now being denied the chance to accept full responsibility for the care and delivery of their patients. Whatever the cause, *we recommend that these new entrants should be encouraged to continue to have an interest in obstetrics.* The vast amount of antenatal work carried out by general practitioners means that a shortage of doctors on the obstetric list would create a crisis for some already overcrowded hospital antenatal clinics. An additional commitment by family doctors to antenatal care could possibly be achieved by a more realistic programme of postgraduate training. Training programmes will be dealt with in Chapter 10.

The Midwife and District Nurse/Midwife

6.7 Prior to the increasing trend towards hospital confinement the community midwife figured prominently in the total care of the patient and had an excellent relationship with the family and the general practitioner. Because of the diminishing workload in the community up to the mid-1970s the number of district midwives decreased and combined district nurse/midwife appointments increased leaving only a few community midwives engaged solely in maternity care. We consider that this trend was unfortunate, particularly in urban areas, since the district nurse/midwife has little opportunity to practice midwifery because of the demands on her time to provide general nursing care. During the past five years there has been a gradual increase in the number of district midwives and we would like the rate of increase to accelerate with the midwife returning to her important role in antenatal care. She should be given time to visit homes, hold clinics, follow up defaulters and supervise parentcraft and health education classes. With the upward trend in the birth rate expected to continue till the early 1990s (see Appendix 11) the workload for the community midwifery service will increase correspondingly. *We recommend that all attempts should therefore be made to appoint more midwives to work with maternity cases only and on a geographical basis wherever possible.* Care must be taken to ensure that good communications with other members of the primary care team are maintained whatever the circumstances.

The Health Visitor

6.8 One of the most important requisites of good antenatal care is the early diagnosis of pregnancy. Because of their close contact with families, health visitors are often the first professionals to learn of a new pregnancy and are thus in a position at an early stage to encourage the patient to attend her general practitioner as soon as possible and to give advice on all the health and social services available. The health visitor should attend the family doctor's antenatal clinics where possible and through health education help to prepare the mother emotionally and physically for parenthood. She can also ensure continuity of care by making a home visit to the woman who attends infrequently for antenatal care or who does not attend at all. However, as can be seen from Appendix 18, the number of health visitors available is inadequate and steps need to be taken to remedy this deficiency. Recommendations on staffing improvements are made in Chapters 7 and 8.

The Social Worker

6.9 Because of the high infant mortality rate in social classes IV and V it is particularly important that services from social workers are readily avail-

able. Social workers are in short supply and few are directly associated with the doctor's surgery; they are however available at many health centres and at hospitals or local clinics to give advice or make home visits where necessary.

Support for Primary Care Team

6.10 The need for hospital services to provide support for primary care should not be forgotten. This would include technical knowledge, training, guidance, supervision, information and good referral facilities. We feel there is a necessity to provide a memorandum for general practitioners, as is done in Great Britain as part of their statement of fees and allowances (SFA51), describing good maternal and neonatal care. Indeed an expanded and updated version of the Great Britain document would prove useful also for hospital as well as community personnel involved in maternity care. *We recommend that guidelines of this nature should be provided.*

Antenatal Services in Hospital

6.11 In view of the increasing number of hospital deliveries and the consequent demand on already overcrowded hospital antenatal clinics *we recommend that general medical practitioners on the obstetric list should be encouraged to increase their antenatal supervision of low risk patients.* They should refer their patients as early as possible to the consultant obstetrician for booking, examination and initiation of routine investigations. For shared care, the general practitioner should then examine the patients at regular intervals throughout the rest of the pregnancy and, as suggested in paragraph 6.4, refer them back to the hospital with their completed records for further examinations.

6.12 Long delays have been experienced by maternity patients in obtaining appointments for their first hospital antenatal visit. A questionnaire sent to all consultant maternity units in Northern Ireland showed that, of those who replied, on average the first time the patient is seen at hospital is at twenty weeks gestation and this must have included some at high risk. Most units however, on telephone request, do arrange to see urgent cases without delay. *We recommend that the time between referral to the hospital and examination at the antenatal clinic should be considerably reduced.*

6.13 Routine antenatal care in the past has included history at booking, physical examination, laboratory studies of haemoglobin, blood type and antibody levels, urine glucose and protein estimations and venereal disease screening. Women were then followed up at subsequent visits when further interval history was obtained and where measurements of blood pressure, weight, oedema, fetal heart rate and uterine growth were made. There is good evidence that this type of "routine" care does not detect many of the high risk placental-fetal problems. More sophisticated investigation is required (Babson and Benson, 1975). Unfortunately no single test is 100% accurate but the search for the ideal method of evaluation of fetal well-being continues. Meanwhile those procedures such as ultrasonography, biochemical and bioelectric tests and measurements of fetal activity which have been proven to be of some value should be utilized. Obstetricians ought to have information from several different types of investigation to help them arrive at the correct clinical decison. Unfortunately these new techniques are neither simple nor cheap (Banta and Thacker, 1979). Their use and interpretation require highly specialized training not only of obstetricians, but also of supporting paediatric, anaesthetic, laboratory and midwifery staff. This and the cost of modern equipment adds weight to the need for an

appraisal of the continued use of some of the smaller units about which we will comment later. Any consideration of this question must include not only an examination of the needs for outpatient clinics but also the availability of beds for those patients requiring admission during the antenatal period.

Fetal Monitoring

6.14 In the case of ultrasound and fetal heart monitoring many types of equipment are on the market. It is therefore not surprising, considering the limit on resources and the relative isolation in which many consultants work, that conflict of thought exists on the products of choice. Because of this, the high cost of equipment and its maintenance and the need to provide the proper laboratory facilities, *we recommend that an appropriate advisory body on obstetrics and gynaecology be set up to give advice on specialised equipment and on the effectiveness of biochemical tests.*

6.15 Modern management of high risk obstetric problems demands precise knowledge of maturity to allow selective planning of delivery. This and the increasing reliance on amniocentesis for diagnosis means that all units dealing with abnormal obstetrics require access to reliable ultrasonic services. The response to a questionnaire sent to hospital consultants showed that at present facilities are inadequate to screen even the 20% or so of patients who require ultrascan for a specific reason, chiefly to confirm maturity. Adequate facilities for fetal monitoring should be made available and kept under review.

6.16 *We recommend that Health and Social Services Boards should be encouraged to make arrangements for special training of staff for work in ultrasonography.* It was thought that obstetricians should control obstetrical ultrasound although it was accepted that in some situations the work was being controlled by radiologists and that most of it could be done competently by a specially trained radiographer.

Quality, Availability and Use of Antenatal Services

6.17 We accept that the quality of antenatal examinations is more important than the number (Wynn and Wynn, 1976). In some hospitals 70% of repeat antenatal examinations are carried out by recently qualified doctors with no postgraduate experience. It has been suggested that all clinical care should be given by fully trained staff (King's Fund Project Paper, 1979). We agree with this view and *recommend that more clinical care should be given by skilled medical staff rather than by junior doctors in training.* In hospitals where there are difficulties, serious consideration should be given to the appointment on a sessional basis of experienced and interested general practitioner obstetricians to help not only with the care of hospital antenatal patients but also in the supervision of the training of young doctors.

6.18 The consumer is interested in the quality of care she receives and of the convenience of health and personal social services facilities. We were concerned to receive evidence that many women are not satisfied with the maternity services, particularly at hospital antenatal clinics. Overcrowding and long waiting periods in clinics were two of the criticisms which could be met to some extent if, as *we recommend, appointment and waiting times for patients at hospital clinics are better controlled and regularly monitored throughout Northern Ireland.* It would be beneficial if clinics, supervised by senior hospital staff, could be extended into the community.

6.19 At some hospitals, while mothers accompanied by children await attention, facilities for these children were said to be non-existent. There was also complaint that often little opportunity existed for private discussion with staff. We appreciate the difficulties experienced by staff many of whom are under considerable pressure due to the large number of patients attending and the increasing complexity of the tests required. Nevertheless it is essential that patients receive a sympathetic and human approach and *we recommend that staff should be helped to acquire a greater appreciation and more sensitive awareness of their patients' feelings and requirements.* In these days of sophisticated techniques and expensive equipment it is easy to allow an inbalance to arise between the technical and human aspects of care.

6.20 An understanding of individual behaviour and motivation is important in planning the way in which antenatal care is provided. The patient's first attendance at hospital is particularly important since it will influence her attitude to keeping future appointments. To establish confidence and put the patient at ease she should be seen at visits to clinics by the same doctor and midwife, where possible.

6.21 The provision of services is not in itself enough to ensure their effectiveness. A survey of all women who reached 38 weeks of pregnancy and were delivered during 1979 in Northern Ireland showed that 91%, that is 24,133 out of a provisional total of 26,814, attended for six or more antenatal examinations (Aickin, 1980). However 237 (1%) had no antenatal care whatsoever and the proportion of these who had a stillbirth was almost six times greater than that of the study group as a whole. Non-attenders were mainly women who were single, separated or young or who had eight or more children. Women who do not attend for antenatal care constitute a problem to which special attention needs to be paid and, through close liaison with the community team, their reasons for non-attendance discovered and rectified if possible.

6.22 We consider that there is room for improvement in communication with early booking with the general practitioner being more actively encouraged. A comprehensive system should be set up throughout the Province whereby midwives and health visitors are notified and can participate early in arrangements for shared care at clinics and surgeries. In this connection *we recommend that all general practitioners should, on confirmation of pregnancy, immediately send form MMS (revised) to the Health and Social Services Board so that other appropriate staff can be informed of the pregnancy.* This would ensure surveillance of health and other needs, early introduction to all services, including allowances and benefits, and to the social worker if necessary. In this way the pregnant woman could be encouraged to make the best use of the facilities provided and she could be contacted if it became known that she was not using the services. At the same time antenatal care must be made available where it is most needed and this could be done by making greater use of midwives in antenatal clinics and in home visiting.

SPECIAL PROBLEMS IN ANTENATAL CARE

Haemolytic Disease of the Newborn

6.23 In 1957 in Northern Ireland twenty infant deaths were registered as caused by haemolytic disease of the newborn (Registrar General, Northern Ireland). This number had been reduced to two in 1977 by better screening of antenatal blood samples, by exchange transfusion, by centralisation of treatment of the most severe cases in the Royal Maternity Hospital and by the

use of anti-Rh(D) immunoglobulin. This product has reduced the number of sensitized Rh-negative women but while total eradication of haemolytic disease of the newborn will not be achieved by this method alone, its proper use would reduce the incidence of morbidity and mortality still further. The arrangement is largely dependent on co-operation between parents, general practitioners, nursing and midwifery and consultant staff. More attention should be paid to non-sensitized Rh-negative women who have had spontaneous or induced abortions to ensure that anti-D immunoglobulin is administered within 72—and preferably 24—hours of the incident. The general practitioner in many cases is the person in the key position to ensure that this is carried out at that time. Supplies of anti-Rh(D) immunoglobulin are held and supplied by the Blood Transfusion Service and hospital laboratories. Reports recently obtained from the former suggest that the request for this product is much less than for the calculated number of patients in need. *We recommend therefore that obstetricians and general practitioners should be reminded about this particular problem and that the rate of uptake should be monitored.*

Screening for Teratogenic Conditions in the Antenatal Period

6.24 We have already referred to screening for neural tube defects in paragraph 5.21. There is no doubt that many infections—bacterial, viral and protozoal—may occur during pregnancy and affect the developing fetus either in the form of recurrent abortions, stillbirths, congenital abnormality or increased risk of death in infancy (Dudgeon, 1976). The rubella syndrome is by far the most commonly encountered here but other less frequent and similar syndromes occur with infection by toxoplasma or cytomegaloviruses. Other examples of viruses or bacteria known to affect the developing fetus are chickenpox, tuberculosis and coxsackie B.

6.25 The most commonly encountered lesions in congenital rubella are deafness, cataract and cardiovascular defect. Other defects such as spina bifida, microcephaly, anencephaly and mongolism have been associated with congenital rubella. These defects may occur singly or in combination. Vaccination programmes against rubella began in the United Kingdom in 1970 with a live attenuated virus initially offered to all adolescent females between the ages of 10 and 13 years. While the uptake of vaccine remained high during the initial years, it dropped in the recent past to around 70% and so it was considered that this programme was inadequate. Following the rubella epidemics of 1978 and 1979 the United Kingdom government decided on a much more major attack on the problem to include adult at risk groups.

6.26 Early in 1979 we considered the need for action on rubella vaccination and this Committee made an interim recommendation to the Department of Health and Social Services that the uptake of rubella vaccination amongst schoolgirls aged 11-13 years should be considerably improved, that all pregnant women should be screened and offered vaccination in the postnatal period if necessary and that all seronegative staff working in obstetric and gynaecology units and female staff in at risk occupations should also be vaccinated. We are pleased to note that this recommendation is being implemented and that the service has now been extended to include women attending family planning clinics and others of child bearing age. To ensure that seronegative patients are vaccinated after delivery, the obstetrician in charge of each case should accept responsibility for the immunisation of the patient. *We recommend that Health and Social Services Boards should regularly check progress and take the necessary steps to ensure that uptake remains at the maximum level.*

6.27 Much worldwide research is at present being undertaken on the production of either therapeutic agents or vaccines for those other congenital infections which so far have escaped prevention or treatment. Screening programmes for toxoplasma infections are being carried out in some parts of the United Kingdom and research into treatment is encouraging. The majority of perinatal infections are bacterial in origin and can often be effectively treated. Care must be taken to prevent infection once it is known or suspected that the membranes have ruptured.

6.28 It should be more widely known that the antenatal patient who has not previously been immunised against poliomyelitis may be given Salk vaccine safely at the ordinary scheduled intervals. This is particularly important if any other member of her household is at the time receiving the oral live attenuated vaccine.

Diabetes

6.29 This is a well recognised high risk factor and a recent article has appeared in the Ulster Medical Journal (Glasgow and Harley, 1979) on Congenital Malformations in Infants of Diabetic Mothers. A retrospective study was made of 195 consecutive diabetic pregnancies in the Royal Maternity Hospital, Belfast, between 1963 and 1978. The findings show that proper blood biochemical control in the diabetic woman is of the utmost importance not only during but in the months preceding pregnancy. *We recommend therefore that these high risk diabetic cases should be referred to and supervised at the regional centre both before and during pregnancy.*

Health Education in Antenatal Care

6.30 Health education in prevention of infant mortality and handicap has been comprehensively covered in Chapter 4. It is however necessary to draw attention again in this chapter to the importance of educating both staff and patients to the many factors which can benefit or adversely affect the health of the mother or baby. Recent tragedies have highlighted the need for the careful monitoring of drugs, using only those which are absolutely essential during the early months of pregnancy as prescribed by doctors, and not used haphazardously in self-medication. The adverse effects of smoking and excess alcohol consumption are recognized. These are factors which the mother herself can influence. We must also ensure that the products of industry cannot damage unborn children and the Report of the Department of Health and Social Security (London) Working Party on Lead in the Environment (1980) highlights the need to monitor continuously the heavy metal content of food and water. Excess lead is particularly harmful to the developing fetus.

Research

6.31 The Royal Maternity Hospital and the related University Departments have always figured prominently in the research aspects of obstetrics. This has been no less so in recent years with excellent work in diabetes, rhesus disease, genetics and fetal monitoring. It is felt however that research in Northern Ireland has been impeded in the past by the relatively small number of patients available in any one hospital. This difficulty could be overcome to some extent if projects were planned to include patients from groups of hospitals thus increasing the number available in a particular study.

6.32 In considering measures to reduce the frequency of low birthweight and premature labour *it is recommended that research should be promoted with attention directed to possible aetiological factors.* We consider that the effects of nutrition, exercise, infection, psychological stress and many common environmental factors play an important role in pregnancy although there is as yet little definitive published research.

7. HOSPITAL SERVICES FOR PERINATAL AND NEONATAL CARE

7.1 Much of the recent reduction in perinatal and neonatal mortality in the United Kingdom has been due to improvements in socioeconomic conditions and changes in the age and parity structure of the child-bearing population. There is accumulating evidence, however, that the quality of hospital care given to expectant mothers and sick or low birthweight infants at delivery and during the first few days of life is crucial in determining the future well-being of the baby. With high quality care not only is there an improvement in mortality rates but there also appears to be less handicap among the survivors (Rawlings and Reynolds, 1971; Davies and Tizard, 1975).

7.2 Data from many centres show that perinatal and neonatal mortality rates can be reduced if obstetric and neonatal services are well organised (Thompson and Reynolds, 1977). Following a study of neonatal deaths in Northern Ireland in 1974 and 1975 the suggestion was made that there would be a reduction in the number of deaths if there were improved care in local obstetric units backed up by the facilities of a regional centre (Scott and McClure, 1978). It is essential that high quality medical, nursing and midwifery care is available in the perinatal and neonatal period for all mothers and babies in Northern Ireland, as there is no doubt that improved services would play an immediate important part in reducing infant mortality and handicap.

7.3 Hospital in-patient care may be necessary for the pregnant woman and newborn baby at four main stages. These are—during the antenatal period for high risk patients requiring investigation, treatment or rest, sometimes for lengthy periods; at the time of labour and delivery; for the mother and baby after delivery until they are discharged; and for the sick newborn infant in either an intensive or special care baby unit.

Maternity Services

7.4 During 1979 there were 36 hospital maternity units in Northern Ireland—17 consultant obstetric units and 19 general practitioner units. The proportion of deliveries taking place in hospital is now more than 99%, having increased from about 44% over the past 30 years. There is a difference in the pattern of provision in that in the Eastern Board 95% of births take place in consultant units, whereas in the Northern Board this proportion falls to 67%. Overall in 1979, 3,537 (17%) of all births were in general practitioner units (Department of Health and Social Services (Northern Ireland), 1979).

7.5 Appendix 12 gives data for 1979 for individual maternity units in Northern Ireland. The data have been compiled from Quarterly Statistical Returns which are sent to the Department of Health and Social Services from every maternity unit. In several units the number of available maternity beds may have varied during the year, due for example to closure of wards for re-decoration, and the figures are averages for the complete year. In 1979 there were 909 maternity beds (692 consultant beds and 217 general practitioner beds) for 28,102 births in hospital.

7.6 There was a wide range in the number of deliveries per unit. Nineteen units had less than 500 deliveries and 10 units had more than 1,000 deliveries. The situation is summarised below.

Total Births	*Type of Maternity Unit*	
	Consultant	*General Practitioner*
< 500	1	18
501—1000	6	1
1001—1500	4	—
1501—2000	2	—
> 2001	4	—
	17	19

7.7 Appendix 12 also shows the number of births per bed per annum in each unit. For Northern Ireland as a whole the ratio of births per bed is 31. The ratio rises to above 31 for the Southern and Eastern Health and Social Services Board areas, and is below 30 for the Northern and Western Health and Social Services Board areas. There is considerable variation between individual units with nine consultant units having more than 32 births per bed, five of which have more than 40 births per bed. Only two of the general practitioner units have more than 30 births per bed, and over half of them have less than 20 births per bed. The ratio of births per bed is one indicator of the workload of a unit. However it must be used with some caution since part of the work of hospitals is the care of antenatal patients and the ratio does not reflect this. In some general practitioner units patients are cared for who have been transferred from a consultant unit after delivery there. The ratio of births per bed does not take this into account either.

7.8 Other data in Appendix 12 are occupancy rates and average length of stay for individual maternity units. These figures are related since average occupancy will be increased by a patient staying in hospital for a long time. Occupancy is a further pointer to workload as it gives an idea of the proportion of time during which a hospital bed is in use. However it does not quantify staff involvement in the patient's care. It is not of course reasonable to expect a hospital bed to be constantly occupied and a rate of occupancy of 75-80% by maternity patients is an acceptable target. There is considerable variation in the occupancy rates of maternity units through the Province. Many of the consultant units, particularly those outside the Eastern area, have occupancy rates of 75% or more, whereas many general practitioner units have low occupancy rates. There is also variation in the length of stay between individual consultant units, with a range from 4.8 to 9.0 days. The length of stay for an individual unit will depend on factors which include the proportion of patients who have complicated deliveries. Whilst it is often necessary to retain the high risk patient for a longer stay in hospital, the majority of cases are normal and may well be discharged earlier than happens in some units.

7.9 Considering Northern Ireland as a whole there are enough obstetric beds for at least 30,000 births annually. However, there are some districts in which maternity units are overcrowded and where the childbearing population continues to increase. With additional pressure on overcrowded units, there are not enough beds to allow for essential antenatal hospital admission for investigation and treatment. In some units the problem of overcrowding is added to by other deficiencies such as insufficient rooms for admission, for labour and delivery, and lack of day wards and teaching accommodation. Appendix 12 shows that on the other hand several units are underused. The problem is therefore one of distribution of maternity beds and facilities.

7.10 The recommended pattern of services for maternity care was set out in the Report of the Peel Committee (Central Health Services Council, 1970). This report and the later Report of the Expert Group on Special Care for Babies (Department of Health and Social Security (London), 1971) emphasised the disadvantages of small maternity units and stressed the importance of good co-operation between obstetric and paediatric staff. Units must be large enough to sustain the skills of a team providing cover for 24 hours a day and to enable them to keep up to date with advances in technology. A discussion document produced by the British Paediatric Association/Royal College of Obstetricians and Gynaecologists (1978) suggested that units should deliver between 2,000 and 5,000 babies a year. During the last 20 years, other countries such as France, Sweden and Finland have attempted to centralise maternity services. We received evidence that the large number of maternity units in Northern Ireland made it impossible to staff and equip all units to give up to date care.

7.11 We recognise that a balance must be reached between what is ideal in terms of the safety of mother and baby and what is acceptable to the community. The factor of accessibility weighs heavily in Northern Ireland where a relatively local maternity service has been available. However people will have to forego convenience to some extent if they want a service providing expert skill and maximum safety. During her short stay in hospital the inconvenience to the patient and her relatives in travelling might in some instances be overcome if after delivery mother and child were to return home to the care of a general practitioner or midwife or, if possible, to an underused unit closer to home. Such an arrangement might also help to relieve the pressure on very busy hospital units and make space available for more hospital admissions in the antenatal period.

7.12 As over 70% of infant deaths and stillbirths in Northern Ireland occur in the perinatal period it is particularly essential that the best possible care is available during this time. However it is difficult to identify all patients who might be at risk and require fetal monitoring or interventive delivery, or whose infants might require special care. Therefore facilities and expertise must be available to all mothers and infants where delivery is taking place as the infant's condition at delivery and the treatment then given will often determine the eventual outcome (Omer and Robson, 1974). Where possible high risk patients should be transferred to selected obstetric units as already happens to an increasing proportion of patients such as those with rhesus iso-immunisation, diabetes, severe hypertension and early pre-term labour. For these groups the numbers involved are likely to be less than 1% of deliveries. It would also be important to ensure that education and training is available to all staff in all units so that they can deal with high risk patients who are not transferred. This can be achieved by the use of postgraduate seminars and through medical societies such as the Ulster Obstetric Society and the Ulster Paediatric Society. Training for nurses and midwives in neonatal intensive care has been developed recently and a regular course is now available at the Central School of Midwifery. Although there are some units in which facilities and equipment need attention we consider that in general improved training of staff and better use of available resources are more important priorities than improved physical facilities or new equipment.

7.13 At present about 17% of deliveries take place in general practitioner hospital maternity units and the contribution of the general practitioner to obstetrics is important. Although many general practitioners no longer wish

to carry out deliveries it is considered that, where beds are available, the general practitioner should have the opportunity to deliver his own patients if he wishes. It is essential for the general practitioner and consultant to work together as a team and all patients should be seen at least once by a consultant obstetrician who would assess their suitability for delivery in a general practitioner unit. *We recommend that all patients should have ready access to consultant obstetric care and that each general practitioner maternity unit should be situated in close proximity to a consultant obstetric unit.*

7.14 Present services in Northern Ireland are variable in both quality and quantity and in order to provide uniform high quality care the maternity services must be rationalised. Although the ideal solution would appear from European estimates to be about 5 or 6 maternity units each responsible for approximately five thousand deliveries a year we do not think that this pattern would suit Northern Ireland. *We recommend that the aim should be to have each maternity unit dealing with at least* 1,500 *births a year.* We appreciate the difficulties involved in rationalising the maternity services and would suggest that to gain some benefits quickly *the short term goal should be to phase out at an early date units delivering less than* 1,000 *babies a year except in very exceptional circumstances.* It should be possible to begin right away with some small units. Where this results in the phasing out of isolated general practitioner beds, replacement beds should be provided as required within or near a consultant unit. (See also the recommendation about intensive care cots in paragraph 7.25).

Neonatal Services

7.15 The vast majority of infants are born healthy and well, and are cared for by their mothers, with the help of midwives, in the postnatal wards. A certain proportion of infants (perhaps about 15%) require more supervision, because of particular problems such as difficulty with feeding, jaundice, moderately low birthweight or a tendency to hypoglycaemia. Some of these infants can be managed on the postnatal ward but it has been the practice to admit most of them to special care baby units where they are generally nursed by midwives. About 1-2% of babies have severe illnesses or abnormalities or are very immature and these require sophisticated management if they are to survive. Among such infants are many of very low birthweight ($<$1,500 grams) who need constant skilled medical and nursing attention, monitoring of vital signs, often long term ventilation and parenteral nutrition. This is the sort of care that is generally referred to as intensive care (as described by Reynolds, 1978).

Special Care

7.16 In an attempt to obtain information on the type of special care and treatment being given to sick neonates in all the consultant obstetric units a survey was carried out. The provision of cots per 1,000 live births varied widely between units, depending on the number of infants requiring care. The proportion of inborn infants being admitted to special care baby units ranged from 13% to 50% suggesting that the criteria for admission varied widely from unit to unit. Many infants were admitted for 24 to 48 hours for observation only and were receiving care which it appeared could be given equally well on the postnatal ward. Some of the reasons why so many infants were admitted into special care baby units seemed to be shortage of staff and space on the postnatal ward making continuous surveillance of the newborn very difficult. In any event it is clear that too many babies are being

transferred for special care and this results in overcrowding in some units. Where possible they should remain with the mother in the ward to avoid unnecessary separation of mother and baby and also to allow staff to be used more effectively.

7.17 Some maternity hospitals transfer all sick babies to a unit which has better facilities or more adequate staffing, whilst others tend to transfer only the babies who require more specialised care. As Northern Ireland does not at present have a neonatal flying squad all infants requiring transfer are transported by ambulances equipped with portable incubators, usually accompanied by a midwife and occasionally by a doctor.

7.18 The main reason for the transfer of so many sick infants is that at present many units lack the staff and facilities needed to resuscitate and treat them for the vital first few hours of life. No infant should be born in such a unit and so *we recommend that each rationalised maternity unit should have a properly equipped special care baby unit staffed by skilled and experienced personnel.* Immediate treatment of babies requiring intensive care could also be given in these units while the transfer is being arranged.

7.19 There is no overall shortage of neonatal special care cots in Northern Ireland and a number of units have greater provision than the recommendation of 6 cots per 1,000 deliveries (Department of Health and Social Security (London), 1971). This recommendation seems outdated and the actual number of cots required needs further consideration.

Perinatal Intensive Care

7.20 Paediatric intensive care is provided in the Royal Belfast Hospital for Sick Children. Of the six paediatric cots or beds available three are normally used for neonates. Perinatal intensive care is available in the Royal Maternity Hospital (five cots), Belfast City Hospital (two cots) and Altnagelvin Hospital (with up to three cots and for a limited period of time). Perinatal intensive care has been shown to produce improved results in terms of perinatal mortality (Rooth, 1978; Merkatz and Johnston, 1976; Quilligan and Paul, 1974). The overall number of cots available in Northern Ireland is much less than the 1 cot per 1,000 live births recommended in the Sheldon and Oppé reports (Department of Health and Social Security (London), 1971; Department of Health and Social Security (London), 1976). We noted with interest that a clinical and research unit in fetal medicine has recently been developed within the Department of Midwifery and Gynaecology at the Royal Maternity Hospital. Progress on this will be reviewed after a period of time.

7.21 Most infants weighing less than 1500 grams require intensive care, and about half of these need ventilation or continuous positive airways pressure. The other half require careful monitoring, intensive nursing and alimentation. From data obtained in the survey referred to in paragraph 7.16 we estimated that about 270 infants received intensive care during 1979. Most centres and official reports suggest that around 1% to 2% of all live births require intensive care (Department of Health and Social Security (London), 1971; Department of Health and Social Security (London), 1976). It would seem therefore that between about 250-500 infants might require such care in Northern Ireland in one year and we were concerned that a number of infants in need of it were not being transferred to a neonatal intensive care unit.

7.22 General guidelines about infants likely to need intensive care have been issued by consultant paediatricians at the Royal Maternity Hospital to obstetricians with no paediatric cover. However no common policy exists for the transfer of infants. Most units have portable incubators but the problems of defects in equipment and inadequately trained staff mean that at present many infants arrive at the receiving hospital in a moribund condition. Reports from centres in the United States of America, Scandinavia and England have shown that sick infants can be transported successfully provided there is a well organised system run by the unit which will receive them (Blake and McIntosh, 1975; Thompson and Reynolds, 1977).

7.23 *The ideal situation, which we recommend as a long term aim, would be to have a regional perinatal intensive care service with all intensive baby care being provided in one regional unit located close to the point of delivery of most infants likely to need such care.* We feel that to have more than one unit would be wasteful of manpower, skills and equipment and would tend to dilute experience, research and teaching potential. The service would be responsible for providing intensive care for the Province and would include a specially equipped ambulance and a flying squad which could be at all times available for the transport of emergency cases (both mothers and babies) to the regional centre. Apart from providing intensive care the regional service should also operate as a training centre by assisting colleagues in peripheral units to improve their competence and keep their knowledge up-to-date.

7.24 At present intensive care is being provided in several centres and we recognise that there is little chance of this situation changing in the short term. The long term aim to have one unit for intensive care should however be taken into account in any interim developments by ensuring that the service is provided by an integrated perinatal team to care for both infant and mother on the site of the main teaching hospitals, though not necessarily under one roof. Although difficulties exist in the Belfast area in recruiting nursing and midwifery staff, this is a practical problem to which serious consideration is already being given.

7.25 The suggested provision of one intensive care cot for each 1,000 births a year indicates that more than 25 cots would be required for the Province. However as no definitive guidelines for the provision of intensive baby care cots are available *we recommend that as a first step the number of cots should be increased to about* 20. The adequacy of this total should be subject to continuous critical review in the light of improved facilities and increased paediatric staffing at special care baby units outside Belfast.

Staffing

7.26 Details of hospital staffing in obstetrics and gynaecology and in paediatrics are shown in Appendix 13. Consultant paediatric cover is available in only eight maternity units whilst in some others part-time medical cover is provided by general practitioners with an interest and experience in paediatrics. This means that almost half of all the infants born in Northern Ireland are delivered in units with no paediatric cover. In such situations obstetricians, and anaesthetists in the case of an operative delivery, have the responsibility for the resuscitation of some newborn babies while at the same time they must be concerned with the well-being of the mother. The situation would be significantly improved if all vacant paediatric posts were filled. As this is primarily an emergency service requiring 24 hour availability *we recommend that resident or consultant paediatric cover should be provided for the newborn infant in all maternity units.*

7.27 We received evidence that some maternity units, special care baby units and intensive care units were experiencing difficulty because of inadequate nurse and midwifery staffing. Not only is there an apparent shortage of staff but there is also difficulty in achieving a balance between the different grades such as staff midwives, student midwives and nursing auxiliaries. In the past there has been little study of the actual requirements of different types of units yet it is clear that the mix of skills and staffing must be related to the needs of cases under treatment. The staffing requirements of a general practitioner maternity unit must differ from the staffing requirements of a consultant obstetric unit. We recognise that the work done in labour and postnatal wards, special care and intensive care units could be undertaken by different types of staff providing they have adequate training.

7.28 It would appear that units dealing with mainly normal cases and with low workload and occupancy rates might be overstaffed whilst others are understaffed. An arrangement more rational than the present one for determining staffing levels is urgently needed and *we recommend that the nursing and midwifery staffing requirements of different types of maternity units, and working areas within such units, should be examined in order to develop staffing guidelines more appropriate to the needs of mothers and babies.*

Confidential Enquiry into Perinatal Deaths

7.29 Information services will be dealt with fully in Chapter 9 but we would draw attention at this stage to the absence of adequate data to monitor the performance of the service. An obvious gap in relation to hospital services is lack of information about perinatal deaths. *We recommend therefore that a confidential enquiry should be held into each perinatal death.* We feel that this would assist greatly in identifying errors in organisation and management and steps could then be taken without undue delay to remedy the situation. We understand that meetings of senior hospital staff, which are held monthly at the Royal Maternity Hospital to discuss the activities and performance of the Belfast obstetric units, have proven to be of considerable value. Meetings of a similar nature could usefully be developed throughout the Province.

7.30 An enquiry of this nature would best be carried out at area level and guidelines should be issued so that the gathering and collation of information would be done on a uniform basis. It would be essential to bring together all relevant obstetric, paediatric and pathological findings which might help to explain the course of events leading to each perinatal death and why it occurred. This will call for close collaboration between administrative and clinical colleagues at area, district and unit level. The information should be scrutinised centrally by a small co-ordinating group with their findings fed back to areas.

7.31 We realise that with the shortage of pathologists post-mortem examinations are rarely carried out on infants who die but this fact should not be allowed to delay the setting up of such an inquiry. Consideration should be given to the recruitment and training of pathologists with a particular interest in obstetric and paediatric pathology.

Register of the Handicapped

7.32 A further serious gap which we encountered is the absence of data on handicap. *We recommend therefore that there should be a continuing audit into the incidence of handicap.* This could be facilitated by the establishment of a central register of all handicapped children, whose birth records should be examined in an attempt to identify, where possible, the cause of handicap.

8. POSTNEONATAL CARE

8.1 In examining postneonatal care we have covered the period following the infant's discharge from the maternity hospital to the age of one year rather than the postneonatal period which is, strictly speaking, from the end of the fourth week of life to the end of the first year.

POSTNEONATAL MORTALITY

8.2 In Northern Ireland in 1977 there were 25,437 live births and 167 deaths of children aged more than 4 weeks but less than one year. The postneonatal mortality rate was 6.6 per 1,000 live births, a rate higher than that which was recorded for many other developed countries. For example from the various infant mortality rates shown in Appendix 14 it can be seen that the postneonatal mortality rate in Northern Ireland was 3 times higher than the Swedish rate, and one and a half times higher than the rate in Great Britain. As we have already pointed out international comparisons can be misleading but even within the United Kingdom Northern Ireland has a higher postneonatal mortality rate than any other Region (Office of Population Censuses and Surveys, 1979(i)).

8.3 The postneonatal mortality rates for each Health and Social Services Board for the years 1974 to 1977 are shown below:—

Postneonatal Mortality Rate

BOARD	1974	1975	1976	1977
Eastern	7	8	7	6
Northern	5	6	3	6
Southern	8	6	5	8
Western	7	8	4	7
Northern Ireland	7	7	5	7

(Registrar General, Northern Ireland)

During the last ten years the rate has generally been highest in certain parts of the west of the Province and in some areas in Belfast.

8.4 Most of the children who die in this period come from social classes IV and V and there is strong evidence that many of them lived in socially deprived areas. Within Northern Ireland there are small geographical areas in which many of the postneonatal deaths take place. A study of some of the characteristics associated with postneonatal mortality in the greater Belfast urban area showed that there was a clustering of postneonatal deaths in certain electoral wards. The home address of each child who died during the postneonatal period in 1977 was plotted on a street map which also showed the 101 electoral wards in the Belfast urban area. The deaths were grouped into 22 of these wards (Map 1). The wards correspond closely with those identified by the 1976 study of areas of special social need in Belfast (referred to in paragraph 3.29) as showing the highest overall need (Map 2 and Appendix 15). The geographical distribution of all postneonatal deaths in 1977 throughout Northern Ireland is shown in Map 4 (Appendix 16) (McEldowney, 1979).

8.5 An analysis of infant mortality by cause during the years 1974 to 1977 inclusive shows that of a total of 2022 infant deaths, 682 (34%) occurred in the postneonatal period. The main registered causes of death were infections which were responsible for 315 (46%) and congenital abnormalities, responsible for 198 (29%) of the postneonatal deaths. In many cases the registered cause of death has not been confirmed by post-mortem examination. It has been estimated that one-third of all postneonatal deaths are due to the sudden infant death or cot death syndrome. These deaths occur unexpectedly for no apparent reason and the incidence in Northern Ireland has been reported as 2.8 per 1,000 live births (Froggatt and Lynas, 1971)—more than 70 a year—which is similar to data from other studies in the United Kingdom.

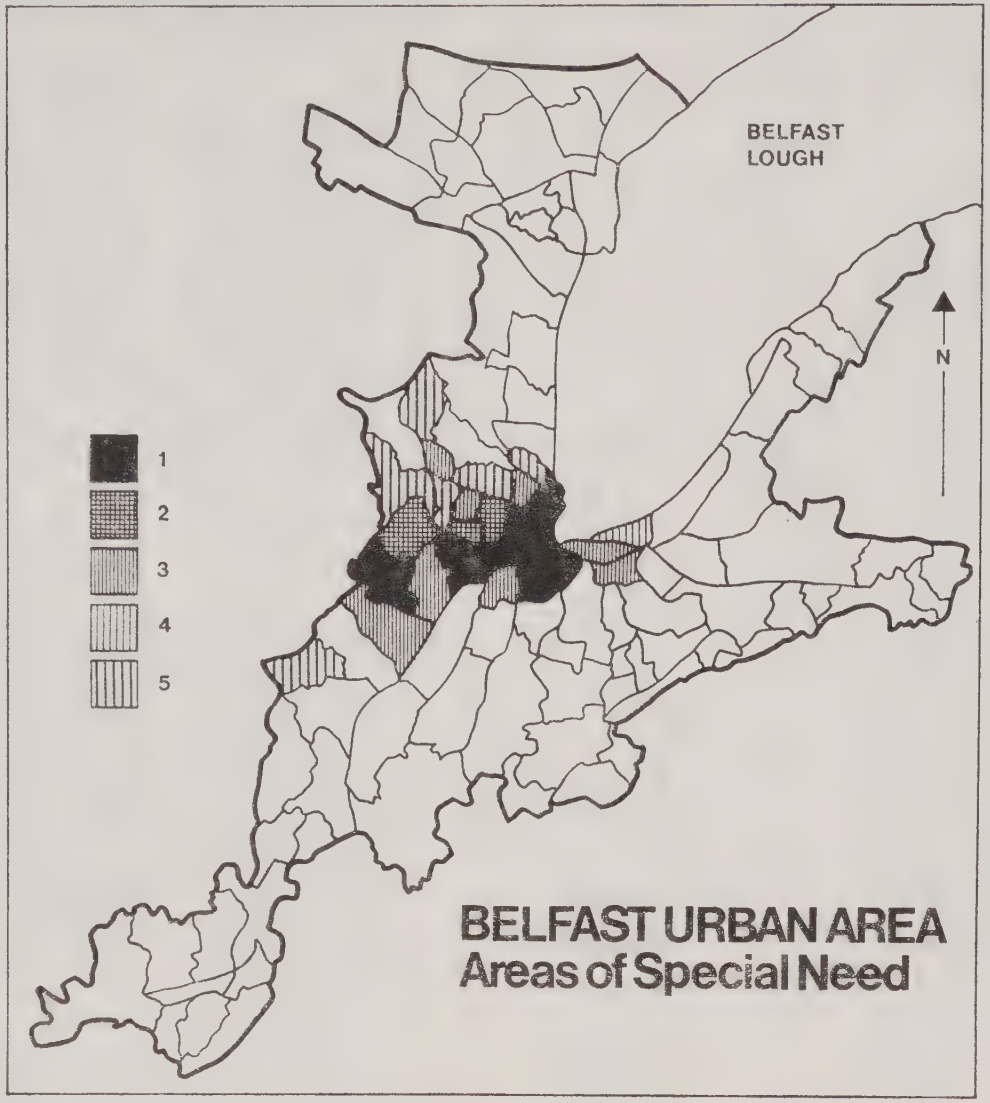
8.6 Using data recorded on the Child Health Record System, some of the characteristics associated with postneonatal mortality can be identified. Postneonatal deaths occur with higher frequency amongst the children of young mothers, mothers with a large number of children and those living in overcrowded and shared housing in urban areas. The incidence is higher in social classes IV and V, and amongst babies of low birthweight and babies who are bottle fed. The postneonatal mortality rates by maternal age, social class and type of feeding for all infants born in 1974 are shown below:—

Maternal age	*Postneonatal mortality rate*
14 — 19	12.6
20 — 29	6.0
30 — 39	5.8
40 +	9.1
All	6.3
Social class	
I + II	2.1
III	6.4
IV + V	8.9
All	6.3
Type of feeding	
Breast-fed only	2.9
All	6.3

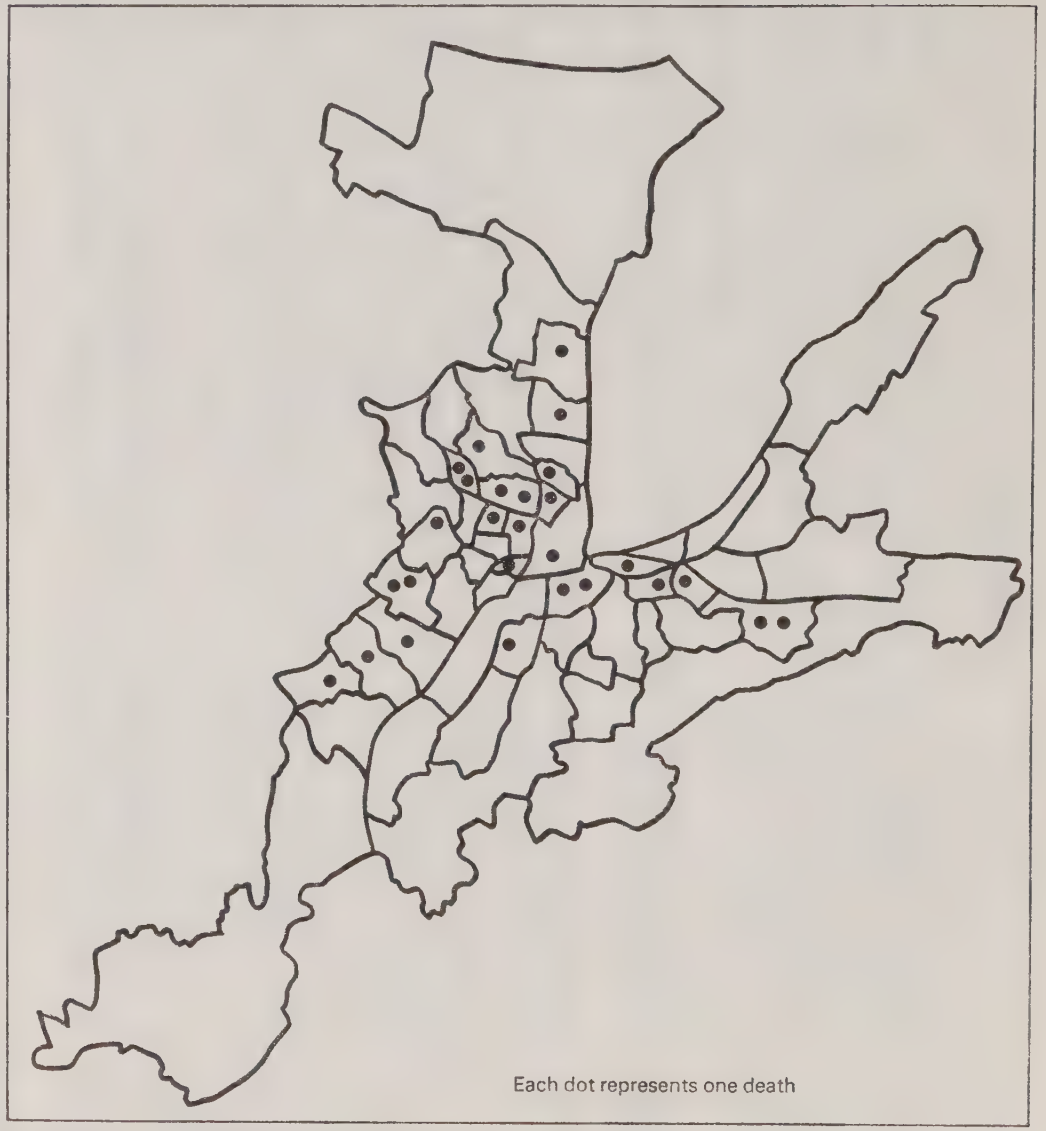
(Wilde, 1977)

Several cities in Great Britain are now collaborating in a multicentre trial which is being undertaken to study more closely the epidemiological characteristics of postneonatal mortality. Detailed and confidential enquiries into each death are taking place in an attempt to establish whether there were any avoidable factors. The study is regarded as an essential first step towards an investigation designed to measure the effectiveness of preventive measures. In Sheffield a scheme is already under way in which children most at risk, defined by statistical methods using information obtained at birth, receive special visiting from health visitors. Early results are promising but before the method can be applied more widely it will be necessary to identify more adequately indicators of risk, and to recognise more clearly what specific preventive measures are likely to be of benefit.

MAP 2 WARDS SHOWING HIGHEST OVERALL SOCIAL NEED



MAP 1 POSTNEONATAL DEATHS—BELFAST 1977



Details of Areas of Special Social Need are shown in Appendix 15

MORBIDITY

8.7 Although there has been a considerable reduction in the number of children who die during the first year of life there is still a large amount of illness occurring in young children. There are problems associated with defining and measuring morbidity. Possible methods of measurement include counting the number of children admitted to hospital, the number of children seen by the general practitioner and the number of children who are handicapped. There are very little readily available data on morbidity amongst children in Northern Ireland. This matter will be discussed later in Chapter 9.

Genetic Disease and Congenital Malformations

8.8 It has been estimated that approximately 3% to 4% of all babies are born with serious defects (Office of Health Economics, 1978). On the basis of this estimate about 900 children would have been affected in Northern Ireland in 1977. The incidence of specific congenital disorders is difficult to derive from data recorded at the time of birth as in some cases a diagnosis may not be made until some time later. However data on some of the more common birth abnormalities for Northern Ireland are shown in Appendix 9. In terms of both the numbers affected and the severity of handicap the condition of spina bifida is of particular importance. As we have already said the incidence of spina bifida and related central nervous system abnormalities in Northern Ireland is the highest recorded in the world. Spina bifida has been estimated to account for about 20% of very severely handicapped children.

Infections

8.9 The importance of intrauterine infection is increasingly being recognised (see Chapter 6), for example the congenital rubella syndrome is now known to be associated with a wide spectrum of malformations. The recorded incidence of some of the more common intrauterine infections is shown below.

Infection	*Rate per 1,000 Live Births*	*No. of cases expected in Northern Ireland per year*
Congenital cytomegalovirus	0.5 — 1.0	14 — 28
Congenital rubella	0.25 — 0.3	6 — 8
Congenital toxoplasmosis	0.05	1

(Dudgeon, 1976)

8.10 As well as being a cause of nearly half of all postneonatal deaths many infections in the young child can cause distressing and long-lasting complications. Although notifications of infectious diseases underestimate the true incidence, they are useful indicators of trends in morbidity. They may also provide warning signals of epidemics as for example with measles or whooping cough. The effectiveness of vaccines has, in developed countries, eliminated many of the killer diseases of childhood such as poliomyelitis and diphtheria and greatly reduced the incidence of other diseases such as whooping cough and tetanus. The concentrated rubella vaccination campaign already referred to in Chapter 6 will be successful in reducing the incidence of the congenital rubella syndrome. Recently a successful vaccine has been developed against the pneumococcus and research is under way in producing vaccines or

chemotherapeutic agents for cytomegalovirus, toxoplasma and respiratory syncytial virus. However little success has been achieved by vaccine or chemotherapy in controlling gastrointestinal infections. Morbidity and mortality from such illnesses could be reduced by putting greater emphasis on the importance of good parental care, reduction in overcrowding in the home and improvement in socioeconomic conditions.

Child Abuse and Neglect

8.11 In the past ten years an increasing number of studies have examined the prevalence and causes of child abuse and neglect. Estimated incidence rates vary widely from place to place and there are complex reasons which determine whether or not a child is registered as being suspected of or confirmed as having been abused or neglected. There is strong evidence that many cases of child abuse are undetected. A study of the register in each Health and Social Services Board area has indicated that the reported incidence in Northern Ireland is probably lower than in other countries (Rogers, 1978). In this study nearly 25% of all those registered were aged less than 1 year when referred. In September 1979 there were 49 registered children aged less than 1 year in Nothern Ireland and the majority belonged to families in social classes IV and V.

SERVICES FOR THE YOUNG CHILD

Primary Care

8.12 The role of the primary care team in the antenatal period has already been discussed in Chapter 6. The team also has a vital part to play in the care of the young child and the policy in Northern Ireland has been to encourage the development of health centres so that workers from different disciplines may complement and reinforce the expertise provided by other members of the team. Tasks such as the early identification of those who need help and the provision of advice and support to groups such as handicapped children and their families should be a shared responsibility. The numbers and locations of health centres in the Province at the end of December 1979 are shown in Appendix 17. There is little doubt that the health and social services are failing in some cases to reach children most in need and we received evidence that there were wide variations in both the quality and comprehensiveness of the primary care service. We feel sure that the primary care team could do much to contribute to an improved service in which morbidity and mortality would be reduced. The following paragraphs supplement, in respect of postneonatal care, information already given in Chapter 6 about the members of the primary care team.

8.13 The district midwife has a most important role to play in advising mothers on early infant care particularly infant feeding. She is usually involved with the mother and infant for the first 10 days after birth (this period may in some cases be extended up to 28 days) when responsibility for health surveillance of the infant passes to the health visitor.

8.14 The health visitor is concerned with the promotion of health and with the preventive aspects of care. She provides a continuing service to families, one which is offered rather than sought, and is able to observe the physical, mental and emotional development of all children. She can sometimes identify needs in the very young child which may hitherto have passed

unrecognised and mobilize appropriate resources to meet them. Although some of her work is carried out in health centres and clinics, home visiting is her main method of communication for teaching and encouraging good family and other personal relationships. Topics such as nutrition, family planning and household budgeting can often best be discussed with parents in the privacy of the home. The degree of health visitor involvement with an individual family is determined by the family's need. Some health visitors in Northern Ireland are attached to general practices while others work in geographical areas, the latter arrangement being common in districts of high social need.

8.15 A general practitioner's duty is to give personal, primary and continuing care to his patients and his work with infants is therefore both preventive and curative in nature. He is responsible for the diagnosis and treatment of acute illness but is increasingly becoming more involved in health education and other preventive measures such as immunisation. Some family doctors carry out developmental screening but this is usually undertaken by the health visitor and clinical medical officer. General practitioners should give special attention to young families in particular if there is reason to believe that children are actually or potentially at risk, as for example in cases of child abuse and neglect.

8.16 Social services support is provided through the social worker if required. Social workers are available to give skilled assistance in cases where there are social problems, material or other. This assistance is based on mutual trust and requires a full appreciation of the needs of families. In addition to providing assistance to unsupported expectant mothers, social workers can be particularly helpful to those wishing to place babies for adoption. They can also help parents trying to cope with the many problems associated with caring for a handicapped child or arising from infant death. Under the terms of the Children and Young Persons Act (Northern Ireland) 1968 the social services departments of Health and Social Services Boards must provide a range of services aimed at promoting the welfare of children and the prevention of child abuse and neglect. These services include residential care, foster care and adoption as well as community based activities which seek to support families in which children are at risk.

Child Health Clinics

8.17 Numerous child health clinics exist throughout Northern Ireland. These clinics which may be located in health, community or youth centres, are staffed by professionals from many disciplines and their work relates to the preventive aspects of care. Developmental screening of pre-school children is an important clinic activity which aims to detect any departure from normal growth and development at an early stage so that appropriate remedial action can be quickly taken. Young children requiring treatment are usually referred in the first instance to their general practitioner although by arrangement the child can be referred directly to a consultant outpatient clinic or accident and emergency department. Efforts are made to locate child health clinics close to centres of population but unfortunately this cannot always be achieved and attendance sometimes involves the use of public or private transport. Immunisation procedures are carried out either in child health clinics or in general practitioner surgeries.

Assessment of the Handicapped Child

8.18 In many parts of the United Kingdom special regional centres are available for the diagnosis and assessment of handicapped children with problems requiring the opinion of a group of highly skilled specialists from various disciplines. Some handicapped children from Northern Ireland have in the past been sent to these centres but the number is decreasing as appropriate facilities are gradually being provided in the Province. In January, 1976, a clinic organised on a multidisciplinary basis was set up at the Belfast City Hospital. It is held once a week and caters for children of all ages although the majority are in the pre-school group. The clinic acts as a regional centre and nearly 50% of those attending come from outside the Eastern Health and Social Services Board area. The assessment team includes a consultant paediatrician, a senior clinical medical officer, a psychologist, an occupational therapist and a speech therapist, together with nursing and social work colleagues. For many years an assessment clinic catering specifically for spina bifida children has been in operation at the Royal Belfast Hospital for Sick Children and more recently a small clinic for children with other handicapping conditions has been established there. Both of these clinics are organised on somewhat similar lines to that at the Belfast City Hospital.

Hospital Services

8.19 Hospital-based paediatric and other specialist services provided for young children are mainly concerned with the investigation, diagnosis and treatment of a wide spectrum of acute and chronic illness. In-patient facilities are scattered throughout the Province and there is great variation in the type of services in those units to which young children are admitted. Very few hospitals have adequate overnight accommodation for parents and play arrangements for children in hospital are also very limited.

Voluntary Organisations

8.20 Many different organisations have made, and continue to make, an important contribution to the care of young children. A number of the services for handicapped children were first established by voluntary societies and the present pattern of provision still depends heavily on the members, the staff and the facilities of voluntary organisations. Much of the development in services for the handicapped has been initiated by parents of handicapped children, who have a personal awareness of the needs of children and of gaps in the available services. Associations supporting parents with handicapped children provide an important opportunity to share knowledge and experience in an informal setting. Voluntary organisations have been instrumental in improving services by making society more aware of the problems of handicapped children. Support for research and the provision of facilities such as day care, residential accommodation, play groups, toy libraries, assessment centres and family centres are other fields where voluntary organisations have played an outstanding part. These organisations are often imaginative and innovative in their approach and have provided a lead to the statutory services.

OPPORTUNITIES FOR INTERVENTION

8.21 We are most concerned about the consistently high postneonatal morbidity and mortality in Northern Ireland and believe that it is particularly worthwhile to concentrate attention on this period since many postneonatal illnesses and deaths, such as those due to infection, can be prevented.

8.22 Studies have implied that early recognition of illness by both professionals and parents could play an important part in the prevention of mortality (McWeeny and Emery, 1975). More recently support for this idea has come from the Department of Health and Social Security (London) multicentre survey of deaths of children aged 1 week to 2 years. Preliminary results show that some children who die at home during this period have major symptoms which may have been present for several days. This suggests that a proportion of cot deaths might be prevented if it was recognised that non-specific symptoms may provide indicators of more serious illness (Stanton and Downham, 1978).

8.23 There is a need to increase the awareness of parents so that they recognise the importance of any abnormal symptom in young children and seek medical assistance at an early stage.

8.24 Deficiencies in medical care also contributed to several of the post-neonatal deaths described in a confidential enquiry into 226 infant deaths in Glasgow (Richards and McIntosh, 1972). It is important that infants are seen promptly and therefore any delay in contacting a doctor, from whatever cause, is dangerous. Advice and prescribing by telephone is a dangerous substitute for seeing and examining a sick infant.

8.25 Parents must have easy access to medical attention when their children become ill. This means that they need to be kept informed about whom they should contact when they need assistance. Prompt medical attention for sick infants is imperative and primary care teams must ensure that there is no delay in responding to a parent's request for a surgery consultation or a home visit. Arrangements must be made for adequate primary medical care cover over the whole 24 hour period. Where deputising services exist there could be problems for it can be difficult for a doctor who has no knowledge of a child's previous illnesses always to provide appropriate treatment. *We recommend that every effort be made to ensure that the sick infant has early access to diagnosis and treatment.* An improvement in the functioning of primary care teams as appropriate would assist.

8.26 The importance of the family and in particular the role of the parents has been stressed in both the Court and Warnock Reports. The Court Committee pointed out that the main responsibility for bringing up children lies with their parents, most of whom were deeply concerned about their children's health and development and derived much satisfaction from successfully providing for them. However the complexity of growth and development are such that all parents at times become discouraged, uncertain of the significance of a problem and what to do about it. It was at such times that reassurance, advice and guidance were required. We endorse these statements. The Warnock Committee, which considered the educational needs of handicapped children and young people, was quite certain that in most cases parents were the best people to undertake the education of severely handicapped children, thus giving them the best chance to develop to their full potential. This education had to begin as early as possible; in fact it had been suggested that where children showed signs of disability at birth or soon after, education should start at once.

8.27 We firmly believe that parents must be involved in a better informed way in the care of their children especially those under one year of age who are dependent on them to satisfy their physical, mental and emotional needs.

The greatest hope for improving the health and wellbeing of young children lies in increasing the knowledge of parents so that they are aware of the steps they can take to reduce the risk of postneonatal death and morbidity. We reiterate therefore the proposals on health education in Chapter 4 for increased emphasis on preparation for parenthood both in schools and in parentcraft classes involving husbands. It is necessary to educate parents about the various services, especially the preventive ones such as immunisation procedures and health surveillance in child health clinics, and how they should be used.

8.28 *We recommend that early and close contact should be established between the child and his parents so that loving family relationships can be established.* Every effort must therefore be made in hospital for parents to see and, if at all possible, handle their children. This is particularly important in relation to sick infants. Older children should be involved in the care of the new baby so that a strong and lasting family relationship can be built up.

8.29 The importance of good nutrition for the young child is widely recognised and the advantages of breast feeding have been referred to earlier. In recent years research has reaffirmed the view that breast milk is the best food for the young child. Breast feeding has a major role to play in preventing the occurrence of gastroenteritis and respiratory tract infections, the effects of which are serious in infants (Cussen, 1978). In addition it gives a significant degree of protection against many other commonly occurring infections and even conditions such as asthma. The contact of the breast feeding mother with her infant can also do much to promote mother and child relationships. Early in the antenatal period the advantages of breast feeding should be emphasised to pregnant women. Staff in maternity units encourage breast feeding but this requires a commitment by busy nursing staff for which time is not always available. More collaboration is necessary between community and hospital based staff in encouraging mothers to breast feed their infants. *We recommend that all possible steps be taken to promote breast feeding.*

8.30 Attention was drawn earlier to postneonatal deaths which occurred in certain electoral wards in Belfast which have been identified as having the highest levels of many of the indicators of social deprivation. This finding is in keeping with the position in many other parts of the United Kingdom where a number of researchers have stressed the association which exists between poor environmental conditions such as sub-standard housing, overcrowding and inadequate nutrition (Knox and Mackintosh, 1958; Elwood and MacKenzie, 1974). We are in no doubt that if progress is to be made in reducing infant mortality and handicap in Northern Ireland urgent action must be taken to improve and make more appropriate the health and social services for those living in socially deprived areas. The necessity to maintain satisfactory services for families living elsewhere in the Province is of course fully recognised.

8.31 Because of lack of family support caused for example by movements of population and the split up of family units there is often insufficient domestic help for women on discharge from hospital. This is particularly true in cases of early discharge, caesarean section or other surgical intervention, and for women who have other small children. *We recommend therefore that women, particularly those who have had experience in running a home with young children, should be recruited by the home help service for this task.* Such a

person might be the first to detect that all was not well, as in the case of the mother who suffers early postnatal depression. The district midwife and health visitor should therefore help both in the training and supervision of such home aides. It is ironic that the home help service which was originally provided as a support for mothers with young children should now have become so orientated towards the care of the aged.

8.32 There is clearly a need to improve and strengthen primary medical care. Although the concept behind the formation of primary care teams is usually recognised as advantageous these teams do not always function in practice as originally intended and, as pointed out in Chapter 6, have not yet been established in many places. One factor which probably militates against the development of an effective team approach in the care of children is that many professional staff do not fully understand the role of other members of the team (Orr, 1976). In these circumstances it is not surprising that parents also become confused.

8.33 Great importance has been placed on home visiting in France and countries such as Sweden, Finland and Holland where a much greater intensity of community nursing care is provided than at present exists in the United Kingdom (Emery, 1976; Wynn and Wynn, 1979(ii)). In certain parts of Northern Ireland, particularly those known to be socially deprived, there is a shortage of professional staff. Data showing the shortfall of certain community nursing and midwifery staff, social workers and clinical medical officers are shown in Appendix 18. In deprived areas there is often a high turnover of staff which makes continuity of care difficult. Problems such as vandalism, difficulty in gaining access to homes and frequent changes of address of mothers create problems for staff attempting to provide good primary care. It would seem that where primary care is most needed it is least likely to be available.

8.34 Reference has already been made to the important preventive role of the health visitor and to the opportunities she has for health education when home visiting especially in areas of high social need. With limited resources it seems unlikely that health visiting could be increased for all children. It is therefore necessary to identify more clearly both individual infants and geographical areas associated with an increased risk of postneonatal death so that resources can be concentrated on them. This principle of positive discrimination is one which commends itself when considering infant mortality and handicap and there is evidence in Nottingham and elsewhere (Madeley and Latham, 1979) that a planned programme of allocation of additional resources to families in greatest need and living in deprived areas may be effective. *We recommend an increase in both health visitor and social work staffing in areas of social deprivation.*

8.35 In an attempt to reduce postneonatal mortality and morbidity *we recommend that there should be increased health visiting to identified high risk infants in a defined geographical area.* Studies in Sheffield (Carpenter and Emery, 1974) seem to show this to be effective in reducing postneonatal deaths. A pilot scheme should be initiated in a District such as North and West Belfast where it is known that there are many problems. The situation of the Royal Belfast Hospital for Sick Children within this District would make it an ideal base from which to start a trial involving both community and hospital based staff.

8.36 The early identification of children at high risk of postneonatal morbidity and mortality is essential so that effective supervision and, if necessary, treatment can be organised. We recognise that workers in the field try to identify high risk infants and offer them a more intensive service. However we believe that the organisation of services could be improved in this sphere and *we recommend that each Health and Social Services Board should examine in depth the problem in its own area and make every effort to plan its services to reach this group more effectively.* Good communication between hospital and community services is also called for so that relevant information on high risk infants is passed to those who will be involved in their care.

8.37 Traditionally there has been a division in the training provided for both medical and nursing staff working in hospital and community. Attempts are now being made to bridge this gap, for example, some medical paediatric training posts incorporate training in the community. However, it would be advantageous to both hospital and community staff if there were increased liaison (Komrower, 1977; Illingworth, 1979). *We recommend therefore that Health and Social Services Boards should take steps to improve communication between hospital and community staff.* We feel that in some instances hospital based paediatric staff could do a great deal to foster co-operation and to raise standards of paediatric care by working in community clinics in areas of specified need and *we recommend that they should be encouraged to do so.* Specialist services would in this way be brought nearer to families who might not attend hospital clinics.

8.38. It has been suggested that routine developmental screening of all infants is of considerable value in the early detection of abnormality (Curtis Jenkins and Collins, 1978). We agree with this suggestion and *recommend that developmental screening should be extended to ensure that all infants are examined as recommended in current codes of practice.* We understand that much of this work (with the exception of screening at or near birth) is carried out in child health clinics but that in some places a shortage of clinical medical officers has meant that full coverage of infants has not been possible. *We recommend that more doctors in this grade be recruited and trained for this work to fulfil service requirements especially in areas of special social need.*

8.39 The role of child health clinics is not always clear to parents and although in many cases the clinics provide a service which is well used and widely appreciated there appears to be a necessity to take into account more fully the needs of parents (Graham, 1979). Many parents may wish to obtain advice on aspects of their child's development, and child health clinics offer an opportunity for informal discussion with doctors and health visitors. *We recommend that the function of child health clinics should be publicised* since they have a particularly important part to play in providing easily accessible facilities which are necessary in health surveillance.

8.40 It is clear that the present comprehensive assessment clinics for handicapped children in Northern Ireland cannot provide a diagnostic and treatment service for every child who might require such attention. At present children are cared for in a variety of different settings such as outpatient clinics in area hospitals and clinics run by voluntary organisations. There would appear to be no overall policy in Northern Ireland for the care of handicapped children. A Register for Handicapped Children who are in need of special education is held by each Health and Social Services Board but its

use seems to be very limited. We believe that more facilities for the multi-professional assessment of children with complex and multiple handicaps are required and *recommend that assessment centres on somewhat similar lines to that at the Belfast City Hospital should be provided in each Health and Social Services Board area.*

8.41 The importance of infection as a cause of postneonatal morbidity and mortality has already been stressed. Responsibility for immunisation is shared between general practitioners and staff in child health clinics. This should mean that facilities are available for all infants. However, in recent years the uptake of immunisation has fallen, probably as a result of the adverse publicity associated with whooping cough vaccine. Appendix 19 shows the percentage of children born in 1974 and 1975 who have completed a primary course of immunisation against diphtheria, tetanus, whooping cough and poliomyelitis. It also shows the uptake of rubella vaccination amongst schoolgirls in recent years. The levels are unsatisfactory and *we recommend that further efforts should be made to increase the uptake of all recommended vaccines.*

8.42 The care of infants with infectious disease also requires attention. Many hospitals to which children are admitted have little or no accommodation for the isolation of inpatients suspected of having infectious disease. *We recommend therefore that such facilities should be provided in each hospital to which children are admitted.* A regional centre for high risk isolation cases and the very ill child, providing special medical and nursing expertise, would of course still be required.

8.43 The care of ill children by the primary care team has already been mentioned. The need for expert paediatric attention for these children, especially the ones who are acutely ill, cannot be overemphasised. It is therefore a matter for concern to note that some young children are still being admitted to hospitals where paediatric staff are not always available. In several hospitals sick infants are nursed in adult wards and throughout the Province there is a shortage of nurses who are trained in the care of children. Since it is generally agreed that children should be nursed by staff who understand and respond to their particular needs *we recommend that sick children should only be admitted to hospitals with satisfactory medical and nursing paediatric cover. We further recommend that every effort should be made to improve paediatric staffing throughout the Province.*

9. INFORMATION SERVICES

9.1 Reference has been made on several occasions earlier in the Report to the inadequacy of information services and hence the difficulty in obtaining information to assist clinicians and management in providing the best possible service to patients. "Information" has been defined as a "communication of instructive knowledge" and we feel that improved communication between the various professional staff would assist in the reduction of infant mortality and handicap. To provide a high standard of care it is necessary to have an effective and efficient system for the collection of accurate data using standardised records relating to each individual and also clear lines of communication between professional staff.

9.2 We are aware that a good quality information service will benefit the entire health and personal social services, and not be limited to bringing about improvements only in the infant mortality and handicap rates in Northern Ireland. It would therefore not be appropriate to set the costs of providing such improvements solely against the recommendations of this Committee. However we welcome the opportunity to give our support to and press for early improvements to the information services.

9.3 The Tunbridge Committee was set up to consider the problem of standardisation of hospital medical records and its report was published in 1965. That committee agreed that standardisation of records would bring positive advantages to staff and be of direct benefit to patients. It drew attention to the basic characteristics of medical records, concluding that these should be much more than 'running records' for the purpose of clinical management. Good records have an important part to play in epidemiology, management, and the evaluation of services. It is interesting to note that the Court Committee drew attention to the fact that there is a growing awareness that records should be in part designed and used for appraisal of the quality of service provided.

9.4 The extent to which data becomes information is a measure of the effectiveness of the manager. Some professional staff seem to appreciate the importance of good and accurate data in the day-to-day care of mothers and children and in health and social services management. However the quality and completeness of the records maintained at times leave much to be desired and the development of standardised records has been disappointingly slow. Methods of passing on information tend to be fragmented and in some cases non-existent. On account of staffing problems there is delay both in feeding data to and retrieving it from the computer.

9.5 Despite the establishment of a Forms Standardisation Committee several years ago by the Research and Intelligence Unit of the Department of Health and Social Services, there is clear evidence that little progress has been made in standardising maternity and child health records. The only standardised forms in general use in the child health service are the birth notification and registration forms, the child health record and the school health record. In addition there is a standardised general practitioner maternity medical claim form. Most records covering other aspects of the health care of mother and child vary in design and content. There have been attempts at standardisation within individual Health and Social Services Boards.

9.6 Progress in the introduction of computerised data systems has also been disappointingly slow and only two relate to maternal and child health. The maternity hospital activity analysis in Northern Ireland covers the Royal

Maternity, Belfast City, Ulster and Mid-Ulster Hospitals but better use could be made of the data available if communications between clinicians and administrators could be improved. The child health record system has not yet been fully developed because of the shortage of trained computer staff which is aggravated by the higher financial rewards in private enterprise.

9.7 Amongst the reasons for the inadequacy of the information services in Northern Ireland are:—

- too many different record systems
- a lack of staff training and guidance
- inadequate monitoring
- poor lines of communication
- a lack of commitment from senior management staff to the provision of good information services
- a shortage of people with the necessary skills to interpret data and present it in an understandable form to managers and field workers
- the serious shortage of trained computer staff in the Province.

9.8 To achieve higher standards of care in pregnancy, childbirth and infancy better information services must be set up and used to more effect by all appropriate staff of Health and Social Services Boards. Improved information services would lead to the identification of high risk and priority groups and areas where resources such as staff, buildings, equipment and education are needed. Information services could be improved in a number of ways by:—

- more standardisation of records
- regular updating of guidelines on compiling and recording data
- improved monitoring of the quality and accuracy of data collected
- informing staff of the relevance of good data for epidemiological analysis
- presentation of data to staff in more understandable form.

9.9 At present no uniform arrangements exist for notifying the midwife and health visitor about a new maternity patient and this is unsatisfactory. *We recommend therefore that the system of notification of the midwife and health visitor should be reviewed and appropriate action taken to ensure that they are informed at the earliest possible date.*

9.10 There is no standard form for the referral of antenatal patients to a consultant obstetrician by a general practitioner with the result that the information available to the hospital about the patient's medical history is often insufficient to enable proper care and treatment to be given without the need for further enquiries and perhaps tests. *We recommend therefore that a simple referral form should be drawn up containing only essential information, including an indication of whether the general practitioner is willing to share care of the expectant mother.*

9.11 Almost all confinements now take place in hospital and much of the antenatal care is shared between consultant obstetrician and general practitioner. Co-operation cards are in use in some parts of the Province. These cards should be carried by patients and give relevant details of examinations by general practitioners and hospital staff. They remove the necessity for a great deal of correspondence between the family doctor and the hospital in the normal case and in some instances their use may prevent unnecessary duplication of laboratory tests. In addition they perform a useful part in

instilling in the woman a sense of responsibility for the management of her pregnancy and can encourage her attendance at clinics. Staff in charge of the patient would also be encouraged to record their findings. Unfortunately the design and content of cards in use are not wholly satisfactory and so they have not been adopted universally. Co-operation cards would meet a definite need. *We recommend that action should be taken to design a new card and that every effort should be made to encourage its use.* It is considered that this card would serve as the first document for the health care of the as yet unborn child and so, following the postnatal examination, the card should be retained by or forwarded to the general practitioner. We consider that a discharge summary on the co-operation card would be a useful means of communicating speedily with the general practitioner. This would be particularly valuable for the high risk patient who has had all her care in hospital.

9.12 Many different types of hospital antenatal records are in use. Some lack information on important factors such as the rubella immunisation status of the mother, details of forms of contraception and the age of the father. *We recommend the design of a standard antenatal chart for use in all maternity units.*

9.13 The introduction of a perinatal death certificate in Northern Ireland would be of value by helping to elucidate the epidemiology of perinatal deaths. It would also be of assistance in the confidential enquiry into perinatal deaths proposed in Chapter 7. *We recommend therefore that this matter be considered urgently if indicated by the findings of the pilot study at present being carried out by the University Departments of Community Medicine, Child Health and Midwifery and Gynaecology.*

9.14 Various types of discharge letters are sent by different grades of medical staff to general practitioners about the mother and infant but sometimes this information arrives long after the mother has gone home. *We recommend that a standard discharge form be devised with one copy being retained in the patient's hospital notes, one sent immediately by hand to the community midwifery service and one sent by post to the general practitioner.*

9.15 If the baby is unfit for discharge from the hospital along with the mother the community services should be informed. We have received evidence that in some cases this does not happen and therefore *it is recommended that when the infant remains in hospital after the mother has been discharged the consultant in charge should always inform the general practitioner about the baby's clinical state. It is further recommended that when the child leaves hospital the family doctor should receive a discharge letter giving details of the medical condition, treatment, if any, required and plans for review, if necessary.* Community nursing, midwifery and health visiting staff also need to be informed.

9.16 There are delays on occasions and different procedures are used to inform the general practitioner and other staff in the community when a baby dies in hospital. *We recommend that the position should be examined and steps taken to ensure that there are satisfactory arrangements in all units.*

9.17 Earlier in this chapter we referred to a maternity hospital activity analysis system and to the fact that it is only operating in four hospitals. *We recommend that a system of maternity hospital activity analysis should be introduced in all maternity units.*

9.18 There is no consistent pattern of recording the findings of the clinical examination and assessment of the infant at birth and prior to discharge from the maternity unit. Details of abnormalities discovered during these examinations should be recorded and the information communicated to the primary health care services. *We recommend that these data should form the basis of a separte standardised hospital record for the infant and for community medical records which would continue through the pre-school and school years of the child.*

9.19 There is no standard comprehensive immunisation card in universal use in Northern Ireland and early steps must be taken to remedy this deficiency. *We recommend that a child's immunisation status should be made known to the general practitioner and that these data should be entered on a standard record.* We noted that the Central Services Agency issues personal record cards in respect of every infant and these have proved useful for parents as a means of recording important events such as the dates of specific immunisations.

9.20 When the child health record system was introduced in Northern Ireland in 1971 it was intended that the child health record card would be the first in a series of linked medical records. No such development has taken place and as yet the system does not include items about morbidity. Linked records should aim to extend cover to include care at hospital, by the general practitioner and by other staff in the community services and also to incorporate items relating to morbidity. It is most important that good morbidity records are maintained at primary care level. With the widespread development of group practices and health centres this basic aid to epidemiological monitoring and control should give primary care teams an insight into the pattern of disease within their own catchment populations. They would also allow epidemiologists to monitor more effectively overall activity and thereby formulate policies which would further reduce mortality and morbidity. *We recommend therefore that the system should be reviewed by an expert group.*

9.21 Steps require to be taken to link child and school health records and to resolve difficulties which seem to have arisen, due to computer staff shortages, in computerising school health data. *In the meantime we recommend that special efforts should be made to record relevant details of each child's health during pre-school and school life and we recommend also that these records should be transferred to the general practitioner when the child leaves school.* The data on the records such as history of familial disease, handicap and immunisation could in some instances indicate future at risk mothers and children.

9.22 Staff with appropriate skills, status and authority—not necessarily statisticians—are required at both Health and Social Services Board and Research and Intelligence Unit levels to examine data, interpret them and disseminate appropriate information to those concerned with maternal and child health care. We are concerned that in the past insufficient attention has been given to this matter and *we recommend that one person should be designated at both levels to undertake this important work.*

9.23 *We recommend that data collection on health and social services staffing, which is at present under review, needs further development* so that information can be easily obtained about, for example, the number of nursing and midwifery staff employed in a maternity unit.

9.24 A recommendation from the report of a Department of Health and Social Security (London) Joint Working Party (1974) to introduce A4 folders and insert record forms was subsequently accepted by the Health Departments and the medical profession. Because of the costs involved it was agreed in Northern Ireland that there should be a gradual introduction of the new records with priority being given to general practitioners joining new health centres. The majority of general practitioners in the Province still use the wallet type HS25 Record. Forms originally designed by the Society of Medical Officers of Health are used for children aged 0-5 years attending community health clinics. *We recommend that this position be rationalised and one standard form used in the two situations. We further recommend that consideration should be given to linking the data on such a form with the child and school health records.*

9.25 *We recommend that steps should be taken by the Research and Intelligence Unit and the Department of Medical Statistics (Queen's University) to initiate more extensive monitoring and evaluation of the information services, to improve the quality of data being collected and processed and to present data patterns and highlight abnormal ones for both those who plan and those who deliver health services.* It is hoped that this will lead to improvements in the health care of mothers and infants.

9.26 Whilst the standardisation of forms and rationalisation of record systems suggested above would undoubtedly assist in combating infant mortality and handicap by helping to make the health and social services more efficient and effective it is clear that a major development of the information services is necessary if the full needs are to be met. With a total population of one and a half million people and about 30,000 pregnancies a year a good sophisticated on-line computer system seems essential if a worthwhile epidemiological approach is to be made effective in the early recognition of factors which could or might be related to changes in the rate of infant mortality, or to morbidity in the mother affecting the unborn infant. *The benefit of such a computer is unquestionable and we recommend that one should be provided. We further recommend that the problems associated with the development and functioning of the Research and Intelligence Unit of the Department of Health and Social Services must be overcome, where necessary with more financial and manpower input.*

10. TEACHING AND TRAINING

"Knowledge is the bridge to achievement and education is the bridge to knowledge".
—Dr. Candau, former Director General of the World Health Organisation.

10.1 A wide range of staff in the health and personal social services have a large and valuable part to play in the care of pregnant women and young children. In looking at the teaching and training of personnel who could contribute to the reduction of infant mortality and handicap we have concentrated on those most directly concerned, namely, doctors, nurses, midwives, health visitors and social workers.

MEDICAL TRAINING

10.2 Because of the need to include the vast amount of medical, scientific and technical knowledge which is being constantly acquired, the curriculum for the training of medical students needs constant revision. Inevitably therefore the time spent on the training of practical obstetrics and paediatrics has had to be considerably reduced in the past ten to fifteen years.

10.3 The Royal Commission on Medical Education (1965-68) stated that "The undergraduate student can be expected to learn only the general principles of obstetrics: practical experience of abnormal obstetrics is more properly acquired after registration". It is the aim, therefore, of the Department of Midwifery and Gynaecology at the Queen's University of Belfast to furnish undergraduates with a basic education in the principles of obstetrics and those who wish to undertake obstetric practice in hospital or general practice are expected to continue their training following graduation.

10.4 Medical students also receive teaching in child health during their final two years and this constitutes the entire formal paediatric training received by most doctors during their careers. It includes time spent in special and intensive care baby units. Evidence given by the Department of Child Health at the Queen's University of Belfast indicated that with the present numbers of staff there are difficulties in carrying out as much teaching in small groups as would be desirable. It was also pointed out that the time available for the courses was too short to cover all aspects of paediatrics in detail, although it was recognised that there was some overlap with the teaching given in other departments.

10.5 Doctors concerned with the maternity and child health services both in hospital and in the community can also receive specialised training as postgraduates. This training is co-ordinated by the Northern Ireland Council for Postgraduate Medical Education.

Training for General Practice

10.6 Initial care for maternity patients and infants is normally sought from general practitioners and so it is important that they are adequately trained and experienced to meet this responsibility. A general practitioner may confirm pregnancy, provide full or shared antenatal care for his patients or, if he does not undertake obstetric practice, refer patients to another general practitioner or to a hospital consultant. In an emergency however it is often the patient's own general practitioner who is called and he must have sufficient

knowledge to enable him to deal with the situation. Even if he does not provide obstetric care for his patients, or shares it with consultant obstetrician colleagues, he continues to care for pregnant patients in any intercurrent illness during pregnancy. No general practitioner is completely divorced from the care of pregnant patients.

10.7 It has been estimated that 80%-90% of all paediatric treatment is undertaken in general practice (The Court Report, 1976). For the age group 0-1 year the percentage may be a little less, because in the first year of life hospital admissions are more frequent than for any other single year of childhood. Nevertheless the importance of general practitioners having paediatric knowledge and experience is clear. In particular they must be able to detect the earliest signs of potentially dangerous and damaging illness in infants; they need to be familiar with the developmental milestones, to know how to manage sick children and to be aware of the agencies that are available to give help and support to them and their families. In short they must know how to offer preventive as well as curative measures to young children.

10.8 Before 1953, doctors qualifying in medicine could enter general practice without any postgraduate experience. After 1953, they could enter general practice after the completion of their pre-registration year although many remained for a time in a hospital post to gain experience in obstetrics and/or paediatrics. Vocational training schemes for general practice were introduced in 1965 and most doctors now choose the trainee scheme before entering a practice of their choice. A further step in the development of training for general practice is the requirement that from August, 1982, no doctor can become a principal in general practice without having been vocationally trained for at least three years or without holding a certificate of equivalent experience.

Specialist Training in Obstetrics and Gynaecology

10.9 Doctors wishing to become consultant obstetricians and gynaecologists must undertake postgraduate training in recognised hospital posts for a minimum of three years, during which time they gain experience in all aspects of obstetrics and gynaecology and related subjects and finally take the examination leading to membership of the Royal College of Obstetricians and Gynaecologists. Following this, further experience and training are necessary to qualify for specialist recognition. There is no evidence of a shortage of training posts or of applicants. This specialty is very popular and competition for consultant posts in Northern Ireland is strong, although mainly among local graduates probably because of civil unrest.

Specialist Training in Paediatrics

10.10 A similar training scheme exists for doctors specialising in paediatrics. Until recently consultant posts existed only in Belfast, Londonderry and Craigavon and this has limited both the number of recognised training posts and the opportunities for consultant appointment following training. This year a consultant paediatrician has been appointed to Ballymena. It is hoped that gradually there will be an increase in the number of training posts and that many of these will be filled by general practitioners undergoing their vocational training.

Specialist Training in Community Medicine

10.11 This is a relatively new specialty combining the disciplines of population medicine (epidemiology and statistics), medical sociology and medical administration. Following the reorganisation of the Health and Social Services in 1973, posts in community medicine were filled by doctors formerly employed by local authorities as medical officers in public health departments and those employed by the Northern Ireland Hospitals Authority. Since the setting up of the Faculty of Community Medicine of the Royal College of Physicians in 1972, there has been a postgraduate training scheme for doctors specialising in Community Medicine. The training is non-clinical and those entering the specialty take up appointments mainly as administrative medical officers with Health and Social Services Boards, in the Department of Community Medicine at Queen's University or with the Department of Health and Social Services.

Clinical Medical Officers

10.12 A large number of these are former medical officers in public health departments who have elected to do mainly clinical work in the field of preventive medicine. They undertake prevention and early detection of disease including work in child and school health clinics, developmental screening, family planning and the management of handicapped children in the community. Most of these doctors would not wish to specialise in Community Medicine as it would remove them from clinical work, yet no other specialist training is available to them. Much thought is being given to this problem nationally and it may be that training could be shared with general practitioners and paediatricians, the emphasis being on community work. Recognising the lack of training opportunities for clinical medical officers a comprehensive course in child development was organised through the Northern Ireland Council for Postgraduate Medical Education in 1975 and repeated in 1979. The course was very popular and well received but is not intended to be a substitute for higher medical training, nor could it be recognised as such.

Specialist Training in Anaesthetics

10.13 This specialty is included mainly because an anaesthetist may be the person present at a birth who is best qualified to resuscitate the baby if this is necessary. Such a task would normally be carried out by a paediatrician but since many maternity units still lack paediatric cover, this is not always possible. It is essential that all staff (paediatricians, obstetricians, anaesthetists and midwives) who may be called upon to resuscitate a neonate should have appropriate training. They should be able to carry out immediate treatment until such time as an ill neonate can be transferred or receive specialist paediatric attention. It should be remembered that anaesthetists have played a most important part in pioneering neonatal intensive care services in the Province and some will undoubtedly wish to continue in this work. We are pleased to note that resuscitation of the newborn is included in the training programme of all anaesthetists.

Continuing Medical Education

10.14 Doctors engaged in general practice or in the specialties of obstetrics, paediatrics or anaesthetics are not statutorily required to attend refresher courses. However many do so voluntarily, thereby attempting to keep up to date with recent advances in particular subjects, often with financial support and special leave from their employers. The many medical journals published provide a further opportunity for doctors to continue their education. Those engaged in teaching have the added stimulus of contact with students and the need to read widely in the preparation of teaching material.

NURSE, MIDWIFE AND HEALTH VISITOR TRAINING

10.15 The Northern Ireland Council for Nurses and Midwives has responsibility for nursing and midwifery training, professional discipline and midwifery practice. The Council for the Education and Training of Health Visitors is responsible for the education and training of health visitors throughout the United Kingdom and an Advisory Committee exists in Northern Ireland, as in Scotland and Wales, to advise the Council on matters relating to its functions so far as they concern those countries.

Nurses

10.16 Nurses are trained in the nursing care of people of all ages whether they are in hospital or living at home. During training attention is drawn to their preventive role and to the necessity for acquiring skills which will enable them to give effective family support. In Northern Ireland basic nurse training for the general part of the Register (State Registered Nurse) takes the form of a three-year course which includes short allocations to child care and paediatrics, maternity care and home nursing.

10.17 Training for registration as a sick children's nurse is of three years' duration at basic level or a minimum of one year at post registration level. It is intended that the three-year basic training will be phased out in due course and training will be by either a combined general/sick children's basic course or a post registration course. Both will provide training in the nursing of sick children and include teaching in the care of the infant and the causation both of congenital and acquired diseases and their prevention.

10.18 The training for the Roll of Nurses allows State Enrolled Nurses to practise at a basic level within midwifery teams or within teams in the specialties of mental handicap and paediatrics as well as in the general nursing field.

10.19 The Chief Administrative Nursing Officers of the four Health and Social Services Boards, the Director of Nursing and Midwifery Education of the Northern Ireland Council for Nurses and Midwives, and the Nursing and Midwifery Advisory Group of the Department of Health and Social Services have agreed the following policy for nurses in charge of wards where sick children are being nursed:—

> "The nurse in charge of a sick children's ward in which students undertake training for the Sick Children's part of the Register of Nurses should hold the qualification of RSCN. In all other wards where sick children are nursed the nurse in charge should have an acceptable qualification in the care of the children."

At present no appropriate training in the care of children is available for nurses who may not have had any formal training in this subject but who may be in charge of wards in peripheral hospitals to which children are admitted. In order to help such nurses to gain more knowledge of the special needs of children short courses in child development and play for children in hospitals are shortly to be established.

Midwives

10.20 The organisation and content of midwifery training in Northern Ireland has been the subject of careful and detailed examination by two working groups during the past twelve years. A new scheme of midwifery training was drawn up by the Central School of Midwifery and introduced earlier this year. In effect this means that from February, 1980, all entrants to midwifery

training in Northern Ireland must be State Registered Nurses and that the period of training has been extended to 18 months increasing the minimum time taken to become a midwife from 4 years to 4½ years.

10.21 Midwives are trained to play an important role in ante, intra and postnatal care and to serve in an integrated midwifery service which allows them to participate in all these aspects of practice. The development of this integrated service is slow and there is still not always the opportunity for the midwife to put her knowledge and skills into practice. Skilled midwifery staff can in collaboration with other nursing, medical, paramedical and social work colleagues do a great deal to ensure that every woman is given appropriate care throughout her pregnancy, confinement and postnatal period.

10.22 In recent years particular attention has been paid to the content of the basic midwifery curriculum and theoretical and practical training has been extended on topics such as neonatal paediatrics, family planning, health education especially parentcraft teaching, the psychological aspects of pregnancy and childbirth, technical aspects of equipment in use, the management of the midwifery services and the importance of research in the midwifery and neonatal field.

10.23 It is a statutory requirement that practising midwives must attend a midwifery refresher course every 7 years. Those who have been out of practice for 10 years or more must undertake a clinical midwifery refresher course of at least 4 weeks' duration. A number of other post basic training courses are also available. The importance of further education and ongoing in-service training cannot be over-emphasised. Only in this way can good standards of midwifery practice be maintained.

Health Visitors

10.24 Health visitor courses are provided by universities, polytechnics or other higher or further educational establishments. They are subject to initial approval and quinquennial review by the Council for the Education and Training of Health Visitors and by the institution concerned. The policy of the Council is to provide a broad based educational programme for health visitors to prepare them to work with the population as a whole and also to provide a basic preparation which can be supplemented and adapted as necessary to meet varying local needs and the changing requirements of society. Emphasis is of course given to priority groups in the health visiting service. Parents and children have always been considered as such a group.

10.25 In Northern Ireland the Ulster Polytechnic offers 55 training places for the one-year course leading to the Health Visitor's Certificate and a new course for 15 students is due to start at the New University of Ulster in the 1980/81 academic year. Trainees must be State Registered Nurses and hold the State Certified Midwife or Central Midwives Board (Part 1) qualification, or have undertaken a three-month obstetric course. We understand that recruitment of enough suitable nurses for training is proving difficult.

10.26 The aims of the health visiting course are—to develop skills in establishing interpersonal relationships which will provide a basis for constructive work with families and individuals; to sharpen the student's perception of early deviations from normal; to gain a knowledge of statutory and voluntary agencies; to provide practice in working out programmes of help with families or individuals; to illustrate and practice methods of health education and to develop a critical attitude to their use.

10.27 Regular refresher courses for health visitors are provided nationally and cover subjects such as the cycle of deprivation, family visiting, preparation for parenthood and health education for primary prevention. They aim to deal with professional and health service developments in a wide context and offer a forum for the exchange of ideas and experiences. A Fieldwork Teacher's Certificate course is due to start at the Ulster Polytechnic in the 1980/81 academic year and consideration is being given to the possible development of advanced courses for practising health visitors.

SOCIAL WORK TRAINING

10.28 The Central Council for Education and Training in Social Work has responsibility for recognising and approving training courses for social workers throughout the United Kingdom. In Northern Ireland, Scotland and Wales there are national Committees which focus on the training needs of their respective countries and advise the Council on planning, promotion and resource matters. The basic qualification is the Certificate of Qualification in Social Work. Courses are normally provided at universities or polytechnics and are subject to initial approval and periodic review by the Council.

10.29 No central syllabus is issued for courses but broad areas of study are set out in the Training Rules. These include the principles and practice of social work, supervised practice in social work and applied social studies. The latter includes teaching on human growth and behaviour, social policy, social administration and the social services and aspects of the social sciences relevant to social work.

10.30 The Certificate of Qualification in Social Work award is an indication of basic ability to practise. Courses leading to it are in the main generic and are designed to provide students with the knowledge and skills required by all social workers to deal with the whole range of social problems. However, some courses provide students with the opportunity to study special options to give them deeper and more comprehensive understanding in particular areas. All courses should equip students with a broad general knowledge of social problems and help them develop skills in assessment of need and in the use of resources to alleviate stress. Such resources may be personal, supplied by the agency or supplied through the broader community.

10.31 Post-qualifying study provides training beyond the basic level. Courses of between three and twelve months' duration are designed to extend and deepen existing knowledge and practice skills and to keep social workers abreast of contemporary thought. Such courses are provided for social workers with several years experience and they give an opportunity for specialised study in particular areas of practice. No post-qualifying courses are yet available in Northern Ireland but some social workers attend courses in Great Britain. Other training opportunities are available through short in-service courses organised to meet identified training requirements.

SUGGESTED CHANGES IN TRAINING

10.32 The Court Report, when considering the development of the child health services in England and Wales, stressed that a better service could only be realised if there was an extension of training involving children, parents and professionals. Training as it applied to professional staff was necessary because of the changing pattern of ill health and the need for finding ways to persuade people to change their attitudes and behaviour. Attention was drawn to the need for all staff to acquire skills in communication so that not

only could they co-operate better with colleagues in their own and other disciplines especially in the care of handicapped children but also communicate with those who at present make little use of the services.

10.33 The provision of relevant training for different categories of staff depends upon a number of factors such as the tasks to be performed, the knowledge and level of skills needed for their execution and the deployment of staff. The main objectives in training professional staff involved in the care of pregnant women and young children are to increase knowledge and teach skills which will help to improve clinical management. In addition some staff will require training in the planning and management of services. Attention was drawn in Chapter 9 to the importance of information and *we recommend that all training bodies and institutions should review the content of courses to ensure that this subject is given proper emphasis.*

10.34 We received evidence concerning curricular content in relation to infant mortality and handicap *and recommend that for staff directly concerned with this problem specific teaching (basic and post basic) in certain topics is essential and more emphasis should be placed on them as appropriate.* These are—

— genetic counselling
— family planning
— antenatal care
— special and intensive care for neonates
— the use of sophisticated equipment
— skills in communication
— health education
— psychology in relation to pregnancy, childbirth and infant care
— developmental screening
— information services
— the collection and use of statistics
— management and planning of services
— the value of research in the maternal and child health field.

10.35 We were informed that some accommodation and facilities provided in lecture theatres, wards, clinics, nurseries and delivery suites for the teaching of students are inadequate. *It is recommended therefore that an assessment of the situation should be carried out and early action taken to remedy known deficits, particularly in the Belfast teaching hospitals.*

10.36 The importance of joint training for professional staff involved in maternal and child health care is stressed as this would help to foster multidisciplinary co-operation and understanding. It would be particularly helpful for instance in areas such as child abuse and neglect. Such training is already being practised to some extent, for example for staff in some health centres, and *we recommend that every encouragement should be given to its development in the future.*

10.37 The 1979 Report of the Royal Commission on the National Health Service recommended that combined teaching/clinical appointments should be made. Evidence was received which supported this proposal as it relates to nurses and midwives. It was felt that teachers who could make a valuable contribution towards the prevention of infant morbidity and mortality through their teaching role must themselves be fully aware of present-day clinical practice. On the medical side there are already a number of joint

university/hospital appointments in existence. *We recommend that further consideration should be given to the need for and feasibility of establishing a number of joint teaching/service posts in nursing and midwifery.*

10.38 There has been a considerable expansion in recent years in postgraduate medical training and we acknowledge the work done by the Northern Ireland Council for Postgraduate Medical Education and University Departments in trying to meet need in this field. It is hoped that collaboration between the Council and various University Departments will be continued and increased.

10.39 In the postgraduate education programme of trainee general practitioners only the twelve month period in general practice is compulsory. Obstetrics and paediatrics are among the six optional specialties, in any two of which six months experience is required. The result is that in their postgraduate training about half of the new entrants to general practice gain further experience in obstetrics and about one quarter in paediatrics. We support the present six months obstetric training for trainees who wish to undertake the care of maternity patients. *We recommend that all trainee general practitioners should have some postgraduate experience in obstetrics and paediatrics and if necessary further posts should be created for training. We further recommend that all general practitioners on the Obstetric List should undertake refresher courses at reasonable intervals during their careers.*

10.40 *We recommend that doctors undergoing specialist training in obstetrics should have experience in neonatology since they may often have to care for the sick newborn infant.* This should extend over a six month period and is particularly important for those who may work in hospitals where paediatric care is not at present available.

10.41 We received evidence on the need for more. readily available. refresher courses for practising consultant obstetricians. *It is recommended that every effort be made to encourage and facilitate attendance at such courses and that consideration be given to the necessity to provide additional refresher courses.*

10.42 We were pleased to learn that all trainee paediatricians are at present receiving some experience in neonatology. This training should prove most valuable especially in area hospitals where paediatricians will have to care for sick neonates and to decide which infants should be cared for locally and which should be transferred for intensive care. *We recommend that all paediatricians should have at least six months experience in neonatal work.*

10.43 Although the Royal Colleges have indicated that all paediatricians should have knowledge and experience of child health work in the community little progress seems to have been made in arranging this in Northern Ireland. *We recommend therefore that a larger number of trainees should be given the opportunity to gain such experience.*

10.44 Appropriate training for Community Physicians is essential since these doctors working closely with hospital and family practitioners can help to ensure that problems are identified early and where possible ways found for their resolution. With this in mind *we recommend that those undertaking community medicine training in Northern Ireland should have practical experience of the organisation of the maternity and child health services and the difficulties encountered in having to improve them.*

10.45 In the organisation of all postgraduate training the needs of personnel with domestic commitments, who would only be able to attend on a part-time basis, should be remembered.

10.46 The recently revised training arrangements for midwives should ensure the proper training of staff in this grade. However if midwifery staffing is to be raised to the level necessary to provide a more extensive service in the community continuous efforts will have to be made to retain the newly qualified midwife and to make the best use of trained midwives.

10.47 All staff planning and managing health services are concerned that resources are used to the best advantage and that people in need can receive the help they require. We received much evidence indicating the desirability of having in the Province a midwifery service integrated between hospital and community since this would allow midwives to be deployed in a more rational way and to put into practice the skills learnt during training. *We recommend that Health and Social Services Boards should take appropriate action without delay to ensure the development of an integrated midwifery service.*

10.48 A wide ranging and thorough training is already available to health visitors. However to perform her work effectively the health visitor must have adequate and up-to-date knowledge of child health and development. In this connection it might be appropriate in reviewing the content of the basic training course to ensure that sufficient emphasis is placed on epidemiological survey methods and behavioural psychology. Consideration should be given to establishing advanced courses for health visitors in maternal and child health and to requiring attendance at refresher courses as in the case of midwives.

10.49 The comprehensive training arrangements for nurses would seem to provide them with a fully adequate range of training opportunities. We welcome in particular the recently developed post basic nineteen week training course in special and intensive neonatal care which has been established following collaboration between the Central School of Midwifery and interested doctors. The aim of the course is to provide a cadre of nurses with insight, experience and knowledge in the care of the newborn and in relevant obstetric and paediatric fields.

10.50 We appreciate that the basic social work qualifying course is generic in nature and that some training is provided after qualification in specialised areas of practice which should clearly include the problem of infant mortality and handicap. Nevertheless we feel that greater emphasis should be placed on this subject in basic training courses to increase the awareness in social work staff of the part they should play in co-operation with other members of the primary care team. Social workers are more likely than other members of the team to be in touch with high risk groups like unmarried pregnant women and unsupported mothers living in socially deprived areas. *We recommend therefore that the content of basic qualifying courses should be reviewed to ensure that all students are fully aware of the problem of infant mortality and handicap and of the vital role they can play. We further recommend that the availability and content of post-qualifying, in-service and short residential training courses for social workers should be examined to ensure that appropriate training is available for staff who will be dealing with mothers and children at risk.*

11. CONCLUSIONS AND SUMMARY OF MAIN RECOMMENDATIONS

11.1 Statistics show that although the various mortality rates relating to infants in Northern Ireland continue to fall, our relative position both in Western Europe and within the United Kingdom is not improving. Even taking into account the larger proportion of births to mothers in high risk groups and the increased incidence of certain congenital malformations in the Province, preventable stillbirths and infant deaths continue to occur. Comprehensive statistics on handicap in the first year of life are not available although it is known that the incidence of conditions such as spina bifida and Down's syndrome remains at a high level. It should be remembered that many handicapping conditions are not apparent in infancy and are not identified until later in childhood, as for instance mental subnormality. The provision of a good genetic counselling service, improving care before, during and after delivery and achieving and maintaining a high level of immunisation can bring about a reduction in the incidence of handicap.

11.2 In accordance with our terms of reference we have examined the factors which contribute to the high infant mortality and handicap rates in Northern Ireland. These factors were discussed in earlier chapters and it is clear that many are interrelated. Underlying most of them are socioeconomic deprivation, adverse behaviour patterns and negative attitudes to health. Social evils including low income, poor housing and unemployment create deprivation from which those involved find it difficult to escape. We believe that greater prosperity, full employment and adequate housing would in themselves make a larger impact on the problem than would changes in the nature and organisation of services. However, it is unlikely that any significant improvement in general living standards will occur in the immediate future and efforts must therefore be directed towards identifying at an early stage high risk mothers and infants and making the health and social services more appropriate to their needs. It is essential that services are made available at the right time and in the right place. Such action would cut down the number of infant deaths and the incidence of handicapping conditions in those who survive.

11.3 Before making recommendations we considered the adequacy of health and personal social services in the light of the factors examined. Many recommendations have been made throughout the earlier chapters of the Report but we now draw attention to 46 of them which we consider to be of particular importance and which would make the greatest impact. These have been grouped under four headings, namely socioeconomic factors and health education, services, staffing and training, and information. Within each group we have further sub-divided these into "priority" and "other major" recommendations. They are not listed in any particular order of preference. Where recommendations appear to fall into more than one category they have been included in the group to which they mainly relate.

11.4 We have looked at the financial and staffing implications of all the recommendations, which range from those requiring considerable expenditure, both capital and revenue, to those where there would appear to be little additional cost involved. For instance, we are in no doubt that staff increases will be necessary and this will require the allocation of additional revenue. We would, however, expect that a proportion of the extra cost would be met through plans already in hand to increase staff numbers in certain grades towards recognised national guidelines. The extent of the additional resources

required will in some cases only become apparent when decisions are taken on how recommendations are to be implemented. A number of recommendations which relate to the health and social services will require changes in staff attitudes especially a better appreciation and a more sensitive awareness of their patients' difficulties. An improvement of communication between personnel working in hospital and in the community is essential. Recommendations of this nature will entail no cost but will make a valuable contribution towards the achievement of our objectives.

11.5 It is necessary that parents and those hoping to become parents assume more responsibility for their children's and their own health and well-being, particularly where preventive measures are concerned. Whilst a strong lead must obviously be given by the caring professions and Government, society in general should become more aware of its responsibility in the field of prevention.

11.6 Recommendations which are concerned with improving perinatal care are designed to avoid or combat situations which could either lead to an infant's death or to the development of a handicapping condition, for example hypoxia causing death or severe mental handicap. A reduction in the number of severely handicapped people who require lifelong residential care will alleviate much human suffering. Initially extra expense would be involved but there should be a considerable long-term saving since, for example, the cost of maintaining each single individual in a hospital for the mentally handicapped in Northern Ireland is about £5,000 a year, a total of £300,000 for a life span of 60 years.

11.7 We welcomed the opportunity given to the Committee to make interim recommendations. Three such recommendations were made on matters which we felt had a comparatively low cost and could be implemented without great difficulty. We are pleased to note that immediate action on all three was taken by the Department of Health and Social Services. The first interim recommendation concerned a campaign to increase the uptake of rubella vaccination and extend the groups to whom it should be offered. Implementation of this recommendation, which required £18,000 extra laboratory costs in the first year, commenced in mid-1979 and is now complete. The second involved the introduction of arrangements to screen all newborn infants for congenital hypothyroidism and this service was introduced province-wide on 1st January, 1980. The third interim recommendation concerned the organisation of a health education publicity campaign to start with the publication of our Report and arrangements have been made to put this recommendation into effect at the appropriate time.

(*NOTE*: *The priority and other major recommendations are summarised in the following paragraphs with appropriate reference to earlier paragraphs in the Report for the convenience of the reader.*)

SOCIOECONOMIC FACTORS AND HEALTH EDUCATION

11.8 It is clear that there is a strong association between socioeconomic conditions and infant mortality. Many of the issues which affect infant mortality therefore are outside the field of the health and personal social services. There is a higher level of socioeconomic deprivation in Northern Ireland than in other parts of the United Kingdom and we have pointed out that infant deaths, particularly in the postneonatal period, are considerably higher in social classes IV and V. We consider that an extra concentration of services should be directed towards these groups.

11.9 In parallel with this it is necessary to ensure that society is well informed, not only about a lifestyle which is likely to improve the outcome of pregnancy and the health of babies, but also about services which are available to help and how to make the best use of them. We would hope that better knowledge might bring about a change of attitude in society itself and a greater realisation of the importance of prevention. In order to achieve this we feel that health education must have a top priority.

11.10 Socioeconomic deprivation is associated with low income and, in most instances, poor housing conditions. Both factors influence infant morbidity and mortality and it is essential that action is taken to alleviate these problems.

Priority Recommendations

(1) A policy of positive discrimination in favour of socially deprived areas and high risk cases should be applied in the provision of health and personal social services. (6.4, 6.8, 8.33, 8.34, 8.35).
(2) Health education should be an integral part of the school curriculum of all children. (4.15).

Other Major Recommendations

(3) The maternity grant should be increased by a substantial amount and linked in future to the cost of living. The increased grant should be payable in four equal instalments upon receipt of certificates of attendance for antenatal care. (3.34).
(4) The time during which a maternity allowance is paid to an employed woman should be increased. (3.35).
(5) The Northern Ireland Housing Executive should be asked to offer, as a matter of urgency, satisfactory housing to any family with infants living in accommodation which is statutorily unfit. It should also be asked to consider the need for providing more homes suitable for large families. (3.36).
(6) A senior teacher who is interested in health education should be designated in each school to co-ordinate the health education programme. (4.17).

SERVICES

11.11 To reduce infant mortality and handicap comprehensive and effective services are required. In some areas a better organisation of existing services would do much to improve their effectiveness, whereas in others some expansion is necessary. It is in the former area that much progress can be made at minimal cost. Many of the recommendations put forward are really a guide to good and efficient management and practice and are already in operation in a number of places. They could be extended throughout Northern Ireland with the help and co-operation of all concerned. We appreciate the problems relating to manpower and facilities which sometimes prevent the services being organised to meet the full needs of patients in the best possible way. However if management and staff at every level critically review their existing arrangements important and relatively inexpensive progress would be made in providing better services to people most in need, resulting in reduced infant mortality and handicap.

Priority Recommendations

(7) Staff should be helped to acquire a greater appreciation and more sensitive awareness of their patients' feelings and requirements. (6.19).

(8) A memorandum on good maternal and neonatal care should be provided. (6.10).

(9) A comprehensive regional genetic advisory service should be established. (5.13, 5.16, 5.19).

(10) Every effort should be made to encourage early diagnosis of pregnancy, early referral to and booking at hospital and adequate antenatal supervision of the patient. (6.2).

(11) Steps should be taken to reduce considerably the time between referral to hospital and examination at the antenatal clinic. (6.12).

(12) No high risk patient should be booked for confinement outside a consultant maternity unit. (6.4).

(13) High risk diabetic patients should be referred to and be supervised at the regional centre. (6.29).

(14) More clinical care at hospital antenatal clinics and in labour wards should be given by skilled medical staff rather than by junior doctors in training. (6.17, 7.12).

(15) All patients should have ready access to consultant obstetric care and each general practitioner maternity unit should be situated in close proximity to a consultant obstetric unit. (7.13).

(16) Resident or consultant paediatric cover should be provided for the newborn infant in all maternity units. (7.26).

(17) Each rationalised maternity unit should have a properly equipped special care baby unit staffed by skilled and experienced personnel. (7.18).

(18) There should be a regional perinatal intensive care service, with a flying squad and additional cots, to cover the Province. (7.23, 7.25).

(19) All infants should have a detailed examination by a doctor, preferably with paediatric or obstetric training, within the first ten days of life. (5.22).

(20) The sick infant should have early access to diagnosis and treatment. (8.25).

(21) Each Health and Social Services Board should plan its services to facilitate the early identification, supervision and, if necessary, treatment of children at high risk of postneonatal morbidity or mortality. (8.36).

(22) Continuing efforts should be made to increase and thereafter maintain a high level of uptake of all recommended vaccines. (6.26, 8.41).

Other Major Recommendations

(23) Women in special need of family planning advice should be identified and offered more positive help. The need for a domiciliary family planning service should be examined and as a first step the feasibility of running a pilot scheme in one district in Belfast should be investigated. (4.23, 4.24).

(24) Urgent consideration should be given to introducing a voluntary ("opting in") antenatal screening programme for neural tube defects. (5.21).

(25) In the long term there should be no maternity units in Northern Ireland delivering less than 1,500 babies a year. In the short term units with less than 1,000 deliveries a year should be phased out at an early date except in very exceptional circumstances. (7.14).

(26) More positive steps should be taken to ensure that home conditions are as satisfactory as possible in all cases before the baby is discharged to the care of its parents. In exceptional circumstances the powers available under Section 164 of the Children and Young Persons Act (Northern Ireland) 1968 should be used if necessary. (3.37).
(27) The home help service should recruit women, particularly those who have had experience in running a home with young children, to assist mothers who need domestic help on discharge from hospital. (8.31).
(28) Sick children should be admitted only to hospitals with satisfactory medical and nursing paediatric cover. (8.43).
(29) Each hospital admitting children should have facilities for the isolation of in-patients suspected of having infectious disease. (8.42).
(30) Assessment clinics should be provided in each Health and Social Services Board area. (8.40).

STAFFING AND TRAINING

11.12 Staffing accounts for at least 70% of expenditure in the health and personal social services. Good care for pregnant women and infants, with special attention being paid to those at high risk, requires the most effective use of staff in post and, where necessary, the recruitment and training of additional staff. It is wasteful of resources not to make the best use of skills which already exist, for example midwives are not always engaged in the practice of midwifery. Increases in staff numbers are limited by the shortage of suitably qualified personnel and the training capacity of courses and so it is unlikely that staffing targets will be reached for a number of years.

11.13 It is essential that the education programmes of staff in training and of existing staff give them the specialised knowledge and training in appropriate skills to care for expectant mothers and children. In addition training should give them an insight into the particular needs of these groups and stress the importance of good communications and co-operation not only with other staff but with the patients themselves.

Priority Recommendations

(31) Staffing in all medical, nursing, midwifery, health visiting and social work grades should be adjusted to recommended levels particularly in areas of special social need. (6.8, 8.34, 8.38, 8.43).
(32) The nursing and midwifery staffing requirements of different types of maternity units, and working areas within such units, should be examined in order to develop staffing guidelines more appropriate to the needs of mothers and babies. (7.28).
(33) All trainee general practitioners should have some postgraduate experience in obstetrics and paediatrics and if necessary further posts should be created for training. All general practitioners on the Obstetric List should undertake refresher courses at intervals during their careers. (10.39).
(34) All obstetricians and paediatricians in training should have six months experience in neonatology. (10.40, 10.42).

Other Major Recommendations

(35) Pre-service courses in health education should be provided for all teachers and in-service courses introduced particularly designed to train school co-ordinators. (4.17).
(36) Specific teaching in topics closely related to infant mortality and handicap should be given as appropriate to staff directly concerned with this problem. (10.34).

(37) The content of all basic qualifying social work courses should be reviewed to ensure that they include teaching on the subject of infant mortality and handicap. The availability of suitable specialised courses for qualified staff should also be examined. (10.50).
(38) Encouragement should be given to the provision of more multi-disciplinary training. (10.36).
(39) Further consideration should be given to the need for and feasibility of establishing a number of joint teaching/service posts in nursing and midwifery. (10.37).
(40) An assessment of accommodation and facilities provided for teaching purposes should be carried out and early action taken to remedy known deficits, particularly in the Belfast teaching hospitals. (10.35).

INFORMATION

11.14 The great difficulties we experienced in obtaining information about many aspects in which we were interested confirmed the evidence received about the inadequacy of the information services. Unless accurate, relevant and easily understood information is available to clinical staff providing care and to management staff responsible for resource allocation and organisation of services then proper clinical audit and monitoring of activities cannot be achieved. By providing such information, services will be improved and infant mortality and handicap will be reduced. Many of our recommendations will lead to improvements even in advance of the provision of a comprehensive computer system. Reorganisation of the present information services should include the standardisation of records and forms which will facilitate collection, assessment and distribution of information.

Priority Recommendations

(41) One person with appropriate skills, status and authority should be designated by each Health and Social Services Board and by the Department of Health and Social Services to examine, interpret and disseminate relevant information to staff concerned with maternal and child health care. (9.22).
(42) The introduction of a perinatal death certificate in Northern Ireland should be urgently considered if indicated by the findings of the pilot study at present being undertaken. (9.13).
(43) A confidential enquiry should be held into each perinatal death. (7.29).

Other Major Recommendations

(44) A separate standardised hospital record for the newborn infant should be introduced. (9.18).
(45) Maternity hospital activity analysis should be introduced in all maternity units. (9.17).
(46) Research into the aetiology of prematurity and low birthweight should be promoted. (6.32).

THE WAY FORWARD

11.15 To bring about a reduction in infant mortality and handicap the implementation of the many recommendations made in this Report will require careful and continuous examination by all concerned. It is important that the Report is not put aside and its contents forgotten shortly after publication. To ensure improvements a regular review of progress in implementing at least the priority and other major recommendations will be necessary. We would urge therefore that target dates be set for the implementation of each recommendation, and progress be reviewed annually so that the momentum will be maintained.

> *"There is so much to do, so many engrossing challenges, so many heartbreaking and pressing needs, so much every day that is profoundly interesting . . . . . "*—Eleanor Roosevelt.

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APPENDIX 1

MEMBERSHIP OF SUB-GROUPS AND PANELS
* Indicates member of Advisory Committee

(1) *Social, Cultural and Economic Factors*

Sub-Group

*Dr. S. J. A. Rogers (Convener)	—	Formerly Head of School of Communication Studies, Ulster Polytechnic. Now Officer of H.M. Inspectorate, Department of Education and Science.
*Miss A. Mann	—	Divisional Nursing Officer, Eastern Health and Social Services Board.
*Mr. M. A. Nelson	—	Assistant Director of Social Services, Southern Health and Social Services Board.
Dr. R. Blaney	—	Senior Lecturer, Department of Community Medicine, The Queen's University of Belfast.
Dr. J. Graham	—	Principal Economist, Central Economic Service, Department of Finance.
Mr. K. Wilson-Davis	—	Formerly Principal Lecturer, School of Applied Social Studies, Ulster Polytechnic. Now Principal Economist, Central Economic Service, Department of Finance.

Panel

Dr. H. Armstrong	—	Former Chairman, Northern Ireland Consumer Council.
Ms. E. Evason	—	Lecturer, Social Administration and Social Work Department, New University of Ulster.
Mrs. T. Greeves	—	Organising Secretary, Northern Ireland Council for Orthopaedic Development.
Mrs. P. A. Lerwill	—	Representative of The National Society for Mentally Handicapped Children.
Miss E. M. McClure	—	Senior Nursing Officer, Londonderry.
Dr. M. Scott	—	Lecturer, Department of Community Medicine, The Queen's University of Belfast.

Research Officer

Mr. James McEldowney was employed for a three-month period to assist the Sub-Group.

(2) *Health Education*

Sub-Group

*Miss M. A. Patton (Convener)	—	Formerly Assistant Chief Administrative Nursing Officer, Eastern Health and Social Services Board.
*Dr. M. McC. Reid	—	Consultant Paediatrician with special interest in Neonatology, Eastern Health and Social Services Board.
Professor W. S. B. Lowry	—	Department of Oncology, The Queen's University of Belfast. Chairman, Advisory Committee on Health Education.

Dr. S. J. McGuffin	—	Principal Lecturer, Stranmillis College.
Mrs. J. Orr	—	Lecturer in Health Visiting, School of Health Sciences, Ulster Polytechnic.
Mr. V. S. Turley	—	Area Health Education Officer, Southern Health and Social Services Board.

Panel

Miss J. M. Allen	—	Health Visitor, Southern Health and Social Services Board.
Mr. J. D. H. Anderson	—	Head of Radio Ulster, British Broadcasting Corporation.
Mr. H. Castles	—	Head of Features, Downtown Radio.
Mr. B. Caul	—	Senior Lecturer, School of Applied Social Studies, Ulster Polytechnic.
Mr. P. E. Davey	—	District Dental Officer, Eastern Health and Social Services Board.
Mr. R. Fitzpatrick	—	Producer, Ulster Television.
Miss B. Lowry	—	Woman's Page Editor, Belfast Telegraph.
Mrs. M. Mallaghan	—	Social Worker, Department of Community Medicine, The Queen's University of Belfast.
Dr. J. Neill	—	Representative of the Family Planning Association.
Mrs. P. Patten	—	Lecturer, Extra Mural Department, The Queen's University of Belfast.
Dr. P. Reilly	—	Senior Lecturer, Department of General Practice, The Queen's University of Belfast.
Miss M. Rooney	—	Principal Administrative Education Officer, North Down Group School of Nursing.
Miss K. Strawbridge	—	Head of Home Economics Department, Stranmillis College.

(3) *Information Services*

Sub-Group

*Dr. R. M. Burns (Convener)	—	Assistant Chief Administrative Medical Officer, Western Health and Social Services Board.
*Professor R. F. L. Logan	—	Department of Community Health, London School of Hygiene and Tropical Medicine.
Miss P. L. Donald	—	Nursing Officer, Department of Health and Social Services.
Dr. A. L. Walby	—	Director, Research and Intelligence Unit, Department of Health and Social Services.

Panel

Dr. C. M. B. Field	—	Consultant Paediatrician, Eastern Health and Social Services Board.
Dr. J. R. McDonald	—	Lecturer, Department of Medical Statistics, The Queen's University of Belfast.
Mr. T. McLaughlin	—	Administrative Officer, Management Services, Northern Health and Social Services Board.
Dr. D. H. Martin	—	Consultant Obstetrician, Western Health and Social Services Board.
Dr. D. S. White	—	General Medical Practitioner, Dunmurry.

(4) *Genetic Counselling and Screening*

Sub-Group

*Dr. M. McC. Reid (Convener)	—	Consultant Paediatrician with special interest in Neonatology, Eastern Health and Social Services Board.
Professor N. C. Nevin	—	Department of Medical Genetics, The Queen's University of Belfast.
Professor J. H. Elwood	—	Department of Community Medicine, The Queen's University of Belfast.

Panel

Mr. J. Piggot	—	Consultant Orthopaedic Surgeon, Eastern Health and Social Services Board.
Dr. J. W. K. Ritchie	—	Consultant Obstretician, Eastern Health and Social Services Board.
Dr. B. G. Scally	—	Consultant Psychiatrist, Northern Health and Social Services Board.

(5) *Antenatal Care*

Sub-Group

*Mr. M. R. Neely (Convener)	—	Consultant Obstetrician, Eastern Health and Social Services Board.
*Dr. J. Wilson	—	General Medical Practitioner, Whitehead.
Mrs. A. Collinson	—	Assistant Chief Administrative Nursing Officer, Western Health and Social Services Board.
Professor W. Thompson	—	Department of Midwifery and Gynaecology, The Queen's University of Belfast.

Panel

Dr. M. J. Armstrong	—	Consultant Obstetrician, Eastern Health and Social Services Board.
Miss N. Hughes	—	Nursing Officer, Northern Health and Social Services Board.
Mr. T. J. M. Myles	—	Consultant Obstetrician, Southern Health and Social Services Board.
Dr. J. O. Woods	—	General Medical Practitioner, Armagh.

(6) *Pattern of Hospital Services for Perinatal and Neonatal Care*

Sub-Group

*Professor R. F. L. Logan (Convener)	—	Department of Community Health, London School of Hygiene and Tropical Medicine.
*Miss A. Mann	—	Divisional Nursing Officer, Eastern Health and Social Services Board.
*Dr. A. Smyth	—	General Medical Practitioner, Forkhill, and Clinical Assistant in Paediatrics, Southern Health and Social Services Board.
Dr. S. N. Donaldson	—	Senior Medical Officer, Department of Health and Social Services.

Panel

Mrs. M. A. Doyle	—	Nursing Officer, Southern Health and Social Services Board.

Mrs. M. Egan	—	District Administrative Nursing Officer, Western Health and Social Services Board.
Miss M. E. Faux	—	Nursing Sister, Eastern Health and Social Services Board.
Dr. V. F. D. Gleadhill	—	Consultant Paediatrician, Eastern Health and Social Services Board.
Mr. E. L. Holland	—	Consultant Obstetrician, Southern Health and Social Services Board.
Dr. S. R. Keilty	—	Consultant Anaesthetist, Eastern Health and Social Services Board.
Dr. D. H. Martin	—	Consultant Obstetrician, Western Health and Social Services Board.
Dr. B. G. McClure	—	Consultant Paediatrician, Eastern Health and Social Services Board.
Miss H. McKeown	—	Senior Nursing Officer, Eastern Health and Social Services Board.
Dr. R. J. M. Quinn	—	Consultant Paediatrician, Western Health and Social Services Board.
Dr. W. Stewart	—	Consultant Obstetrician, Western Health and Social Services Board.
Professor W. Thompson	—	Department of Midwifery and Gynaecology, The Queen's University of Belfast.

(7) *Postneonatal Care*

Sub-Group

*Dr. A. Smyth (Convener)	—	General Medical Practitioner, Forkhill, and Clinical Assistant in Paediatrics, Southern Health and Social Services Board.
*Dr. C. M. Slattery	—	Consultant Paediatrician, Southern Health and Social Services Board.
Miss S. L. Crane	—	Assistant Chief Administrative Nursing Officer, Northern Health and Social Services Board.

Panel

Mr. R. J. Bunting	—	Assistant Director of Social Services, Eastern Health and Social Services Board.
Miss M. E. McElrea	—	Nursing Officer, Western Health and Social Services Board.
Dr. B. J. F. Morgan	—	Senior Medical Officer, Eastern Health and Social Services Board.
Dr. J. F. T. Glasgow	—	Consultant Paediatrician, Eastern Health and Social Services Board.

(8) *Teaching and Training*

Sub-Group

*Professor J. H. M. Pinkerton (Convener)	—	Department of Midwifery and Gynaecology, The Queen's University of Belfast.
*Miss A. Mann	—	Divisional Nursing Officer, Eastern Health and Social Services Board.
*Miss M. A. Patton	—	Former Assistant Chief Administrative Nursing Officer, Eastern Health and Social Services Board.

Professor M. J. Brown	—	Department of Social Studies, The Queen's University of Belfast.
Dr. H. Lamki	—	Consultant Obstetrician, Eastern Health and Social Services Board.
Miss S. R. C. Tinsdale	—	Assistant Director of Nursing and Midwifery Education, Northern Ireland Council for Nurses and Midwives.

Panel

Mr. J. F. O'Sullivan	—	Consultant Obstetrician, Eastern Health and Social Services Board.
Mr. J. A. M. Verzin	—	Consultant Obstetrician, Eastern Health and Social Services Board.
Dr. J. E. McKnight	—	Director, Northern Ireland Council for Postgraduate Medical Education.
Dr. A. E. Greer	—	Assistant Chief Administrative Medical Officer, Eastern Health and Social Services Board.
Miss S. G. Campbell	—	Principal Lecturer, School of Health Sciences, Ulster Polytechnic.
Professor W. G. Irwin	—	Department of General Practice, The Queen's University of Belfast.

APPENDIX 2

MEMBERSHIP OF EDITING SUB-COMMITTEE

Dr. T. T. Baird (Chairman).
Mr. M. R. Neely.
Mr. M. A. Nelson.
Dr. M. McC. Reid.

APPENDIX 3

ORGANISATIONS AND INDIVIDUALS (Not Included in Appendix 1) FROM WHOM COMMENTS WERE RECEIVED

Organisations

Assistant Chief Administrative Nursing Officers (Community).
Area Supervisors of Midwives Group.
Association of Nurse Administrators.
British Dietetic Association (Ulster Branch).
British Medical Association (Northern Ireland Office).
Central Council for Education and Training in Social Work.
Church of Ireland.
Eastern Health and Social Services Board.
Health Visitors Association.
Joint Staffs Councils for the Health and Personal Social Services.
Northern Health and Social Services Board.
Northern Ireland Consumer Council.
Northern Ireland Council for Nurses and Midwives.
Northern Ireland Council for Orthopaedic Development.
Northern Ireland Council for Postgraduate Medical Education.
Northern Ireland Housing Executive.
Northern Ireland Womens Rights Movement.
Presbyterian Church in Ireland.
Republican Clubs, the Workers Party.
Roman Catholic Church.
Royal Belfast Hospital for Sick Children (Consultant Surgeons and Anaesthetists).
Royal College of Midwives (Northern Ireland Board).
Royal College of Nursing (Northern Ireland Board).
Southern Health and Social Services Board.
Special Advisory Committee to the Chief Medical Officer on Cardiology and Cardiac Surgery.
Special Advisory Committee to the Chief Medical Officer on ENT Surgery.
Supplementary Benefits Commission.
The Queen's University of Belfast.
Ulster Unionist Parliamentary Party.
Western Health and Social Services Board.
Womens Forum (Northern Ireland).

Individuals

Mr. D. Alcorn (Community Worker).
Mr. V. E. Boston (Consultant Paediatric Surgeon).
Mr. S. Brown (Consultant Paediatric Surgeon).
Professor I. J. Carré (Professor of Child Health, The Queen's University of Belfast).
Miss E. J. Christie (Occupational Health Nursing Society).
Miss M. F. Cowan (District Nurse/Midwife).
Dr. S. F. Gibson (General Medical Practitioner).
Councillor K. Hornby (Bolton).
Miss A. Kelly (Health Visitor).
Mrs. M. Kerr (Rupert Stanley College).
Mrs. S. Lyons (Former Nurse).
Dr. J. R. McCluggage (General Medical Practitioner).
Mrs. A. McConville (Community Health Worker).
Miss B. McGrellis (Community Midwife).
Dr. J. M. McKelvey (General Medical Practitioner).
Dr. W. P. McMillin (General Medical Practitioner).
Dr. R. M. Shearer (General Medical Practitioner).
Dr. C. H. Stewart (General Medical Practitioner).

APPENDIX 4

ESTIMATED EXPENDITURE ON CERTAIN CASH BENEFITS—1977/78 FINANCIAL YEAR

	Sickness & Invalidity Benefit £ Per Head	Unemployment Benefit £ Per Head	Maternity Benefit £ Per Head	Supplementary Benefits £ Per Head	Child Benefit £ Per Head	Family Income Supplement £ Per Head
United Kingdom	23.70	12.23	1.72	34.47	16.25	0.50
North	33.28	18.42	1.74	39.76	16.27	0.42
Yorkshire & Humberside	27.40	12.04	1.65	33.45	16.37	0.51
East Midlands	20.82	9.82	1.77	28.72	16.49	0.45
East Anglia	12.37	10.07	1.57	24.90	15.49	0.55
South East	15.11	9.41	1.74	31.37	15.32	0.33
South West	17.55	12.34	1.43	31.72	15.14	0.63
West Midlands	22.14	10.32	1.57	33.87	16.80	0.43
North West	29.39	13.62	1.76	42.43	16.72	0.61
England	20.99	11.32	1.68	33.55	15.94	0.45
Wales	41.18	14.77	1.66	39.66	18.39	0.58
Scotland	33.87	17.59	1.93	35.51	16.17	0.56
Northern Ireland	40.68	18.96	2.00	49.51	21.20	1.88

(Regional Statistics, 1980)

APPENDIX 5

UNEMPLOYMENT—PERCENTAGE BY REGION (JANUARY 1980)

	Percentage
South East	3.9
East Anglia	4.6
South West	6.0
West Midlands	5.7
East Midlands	5.0
Yorkshire and Humberside	6.0
North West	7.6
North	9.0
Wales	8.3
Scotland	8.9
Great Britain	5.9
Northern Ireland	11.5

(Employment Gazette, 1980)

APPENDIX 6

DISTRIBUTION OF CIGARETTE SMOKERS BY AGE GROUP AND NUMBER SMOKED PER DAY

Number of Cigarettes Per Day	Percentage Females Aged			
	18-24 yrs.	25-34 yrs.	35-44 yrs.	45 yrs. +
Non-smoker	63.8	60.3	58.9	76.4
1-9	6.3	8.2	10.5	7.1
10-19	16.8	13.7	12.8	9.1
20 or more	13.1	17.8	17.8	7.3

(Blaney and MacKenzie, 1978)

APPENDIX 7
AGE—SPECIFIC BIRTH-RATES 1977

1977	Live births per 1,000 women in age groups						
	15-44(1)	15-19(2)	20-24	25-29	30-34	35-39	40-44
Great Britain	59	30	105	119	59	18	4
North	58	36	113	115	49	15	3
Yorkshire and Humberside	58	33	113	116	52	16	4
East Midlands	60	31	108	121	56	17	3
East Anglia	60	27	108	121	58	17	3
South East	59	25	97	122	66	20	4
South West	56	25	98	116	57	17	3
West Midlands	60	32	110	117	58	19	5
North West	59	33	110	118	57	19	5
England	59	29	104	119	59	18	4
Wales	59	35	109	115	54	18	3
Scotland	59	33	109	120	58	18	4
Northern Ireland	84	30	132	174	103	48	14

(1) Births to mothers aged under 15 and 45 and over have been included in the aggregate 15-44.
(2) Births to mothers aged under 15 have been included in the age group 15-19.

(Regional Statistics, 1980)

APPENDIX 8

SOME OF THE MORE COMMONLY OCCURRING BIRTH IMPAIRMENTS

Central Nervous System

Anencephalus
Partial or complete absence of cranial vault with or without spina bifida. Brain replaced by a mass of angiomatous and neural tissues covered by thin/incomplete membrane. Invariably fatal.

Spina bifida
Takes two main forms. (a) Spina bifida OCCULTA: defect in posterior wall of spinal wall usually in lumbar region. No deleterious effect unless spinal cord affected. (b) CYSTICA: much more serious. Defect accompanied by protrusion of spinal cord: (i) meningocele, in which meninges, containing cerebrospinal fluid, protrude; (ii) meningomyclocele, in which the protruding sac contains spinal cord and nerves. Latter accounts for 90 per cent of cases. Potential for surgical closure of defect varies considerably as does the residual degree of impairment.

Hydrocephalus
Skull enlargement resulting from obstruction to the free flow of cerebrospinal fluid: most often due to abnormalities of the aqueduct of the midbrain. Hydrocephalus frequently accompanies severe cases of spina bifida. Treatment may involve use of unidirectional valves to by-pass cerebrospinal fluid.

Cardiovascular System

Incomplete development or structural abnormalities which may take a variety of forms, such as defects of the valves of the heart, the heart lying on the right side of the thorax instead of the left, patent ductus arteriosus (failure of foetal blood vessel to cease functioning after birth), a defect in the septum separating the chambers of the heart, or coarctation of the aorta (a narrowing of the aorta—the large vessel which opens out of the left ventricle of the heart and carries blood to all the body—in the vicinity of the insertion of the ductus arteriosus). Surgical treatment has become increasingly successful in correcting many heart defects.

Skeletal System

Congenital dislocation of the hip
Hip dislocates at birth. May arise from imbalance between the physical pressure on the foetus and the resistance of the joints to this force. Short period of splinting during infancy may facilitate development of normal hip later in childhood. When CDH is not recognised until one year after birth, treatment less successful (Harold 1977) with residual limp.

Club foot (*talipes equinovarus*)
Deformities of the foot. T. equinus (permanent extension of the foot so that only the ball rests on the ground) is commonly combined with t. varus (inversion of the foot, the outer side of the sole only touching the ground) and often associated with t. cavus (an exaggeration of the normal arch of the foot). May be accompanied by dislocation of hip. Fewer than two-thirds are cured without treatment, involving stretching and strapping, splinting, manipulation and serial plaster casts.

Cleft lip and primary palate
Unilateral or bilateral clefts of the lip with or without an associated cleft of the palate. Together account for 60 per cent of all cleft cases. Other congenital malformations in 50 per cent of cases. Boys more commonly affected than girls and the more severe the defect the greater the male preponderance. One-third of cases have clefts of lip only; two-thirds have clefts of lip as well as palate.

Cleft secondary palate
Clefts of palate only. Account for 40 per cent of all cases. Sometimes accompanied by other defects, mental retardation. Lip surgery is usually undertaken at three months of age and palatial closure performed shortly before or after the first birthday.

Down's Syndrome (Mongolism)
Varying degrees of mental handicap resulting from the presence of an extra chromosome. Affected people are often small in stature with small head, nose and mouth and eyes slanting upwards laterally. Increased susceptibility to infections and other malformations, e.g. heart defects, may be present. Much more common in children born to older women.

Cerebral Palsy
A disorder of movement and posture resulting from damage or failure of normal development in a small part of the brain. Extreme variations in extent to which individuals are affected. Sometimes the damage involves other parts of the brain, leading to deafness and difficulties of perception. Casual factors at work during pregnancy, or brain damage may occur during birth.

(Office of Health Economics, 1978)

APPENDIX 9

CONGENITAL MALFORMATIONS AND GENETIC DISEASE IN NORTHERN IRELAND PER 1,000 TOTAL BIRTHS

GENIC DISORDERS	
Dominants such as polycystic kidneys, neurofibromatosis. Huntington's chorea	9.5
Autosomal recessives such as cystic fibrosis, phenylketonuria	2.1
X-linked conditions such as muscular dystrophy	0.4
	12.0
CHROMOSOMAL ABNORMALITIES	
Down's Syndrome (mongolism)	1.7
Other autosomal anomalies	0.3
Sex chromosomal abnormalities	2.0
	4.0
MULTIFACTORIAL ABNORMALITIES	
Central Nervous System	
Anencephalus	2.5
Spina Bifida	3.9
Hydrocephalus	1.0
Other Central Nervous System Malformations	1.0
	8.4
Skeleton	
Dislocation of hip	1.5
Talipes	4.6
Reduction deformities	1.0
	7.1
Heart	
Cardiac malformations	6.5
Face	
Cleft lip ± palate	1.8
Eye and ear malformations	0.5
	2.3
Genitourinary	
Hypospadias	1.7
TOTAL (All children with lethal and potentially handicapping conditions)	42.0

(Nevin, 1980)

APPENDIX 10

GENERAL PRACTITIONERS IN NORTHERN IRELAND AT 31st DECEMBER 1979

Health and Social Services Board	General Practitioners in Health Centres	General Practitioners in Group Practice	Others
Eastern	152	108	72
Northern	126	30	15
Southern	76	36	23
Western	61	40	22
Total	415	214	132

GENERAL PRACTITIONER OBSTETRIC LIST

Board	Population	Number of General Practitioners	Number of General Practitioners on Obstetric List at 31.12.78	Number of General Practitioners on Obstetric List following 1979 review
Eastern	664,100	332	265	217
Northern	365,000	171	155	151
Southern	267,800	135	115	114
Western	241,700	123	111	104
Total	1,538,600	761	646	586

APPENDIX 10—*continued*

GENERAL PRACTITIONER OBSTETRIC LIST BY BOARD AND DISTRICT FOLLOWING 1979 REVIEW

Board	District	Population	General Practitioners on Obstetric List
Eastern	North and West Belfast	194,400	57
	South Belfast	89,900	30
	East Belfast and Castlereagh	134,000	32
	Lisburn	82,300	24
	North Down and Ards	114,700	54
	Down	48,800	20
Total		664,100	217
Northern	Coleraine, Ballymoney and Moyle	80,500	37
	Magherafelt and Cookstown	60,200	21
	Ballymena and Antrim	93,000	48
	Larne and Carrickfergus	56,300	23
	Newtownabbey	75,000	22
Total		365,000	151
Southern	Armagh and Dungannon	89,800	37
	Craigavon and Banbridge	101,900	40
	Newry and Mourne	76,100	37
Total		267,800	114
Western	Londonderry, Limavady and Strabane	149,100	45
	Omagh	41,700	30
	Fermanagh	50,900	29
Total		241,700	104

APPENDIX 11

PROJECTED ANNUAL NUMBER OF BIRTHS IN NORTHERN IRELAND (MID YEAR ESTIMATE)

1980	27,000
1981	28,000
1982	28,000
1983	29,000
1984	29,000
1985	30,000
1986	30,000
1991	32,000
1996	31,000
2001	29,000
2006	28,000
2011	29,000
2016	30.000

(Office of Population Censuses and Surveys, 1980).

APPENDIX 12

INFORMATION ON BEDS, BIRTHS, BIRTHS PER BED, OCCUPANCY AND LENGTH OF STAY IN EACH MATERNITY UNIT DURING 1979

Name and type of unit	Average No. of available beds (excluding amenity beds)	Births		Births (Live and Still) per available bed	Percentage Occupancy	Average length of stay
		Live	Still			
Eastern Board						
Consultant Units						
Ards	27.0	1,257	16	47.2	62.2	4.8
Belfast City	71.3	2,451	22	34.7	71.9	6.0
Lagan Valley	44.0	1,171	11	26.9	60.0	7.2
Mater	24.0	675	7	28.4	70.4	6.4
Quoile	27.0	670	6	25.0	47.4	5.7
Royal Maternity	104.7	3,583	34	34.6	100.0	8.6
Ulster	42.0	1,809	8	43.3	87.6	6.3
General Practitioner Units						
Bangor	16.0	311	—	19.4	55.0	4.5
Malone Place	32.0	232	1	7.3	40.3	5.0
Total	388.0	12,159	105			
Northern Board						
Consultant Units						
Mid-Ulster	28.0	1,072	14	38.8	78.6	6.9
Moyle	22.0	449	1	20.5	44.6	6.0
Route	19.0	799	13	42.7	92.1	6.8
Waveney	24.5	965	7	39.7	79.6	6.0
General Practitioner Units						
Ballymena Cottage	21.0	530	—	25.2	51.4	5.6
Carrickfergus	12.0	207	1	17.3	29.2	4.0
Cushendall	4.0	17	—	4.3	7.5	5.5
Dalriada	6.0	76	1	12.8	30.0	6.0
Mary Ranken	9.0	233	—	25.9	46.7	5.8
Masssereene	12.0	257	—	21.4	44.2	4.1
Robinson	7.0	260	2	37.4	65.7	5.5
Total	164.5	4,865	39			

Southern Board						
Consultant Units						
Craigavon	62.0	2,233	20	36.3	75.7	6.5
Daisy Hill	40.0	1,714	17	43.3	81.8	5.9
South Tyrone	32.0	941	7	29.6	71.9	7.0
General Practitioner Units						
Banbridge	10.0	284	—	28.4	73.0	6.4
Mourne	6.0	12	—	2.0	6.7	2.7
Newry General	6.0	4	—	0.7	10.0	4.1
St. John of God	6.0	36	—	6.0	91.7	4.0
Tower Hill Maternity	8.0	261	—	32.6	73.8	4.5
Total	170.0	5,485	44			
Western Board						
Consultant Units						
Altnagelvin	62.2	2,552	34	41.6	83.3	5.7
Erne	37.0	1,052	15	28.8	80.5	9.0
Tyrone County	25.0	925	15	37.6	69.2	5.5
General Practitioner Units						
Anderson House	23.0	431	—	18.7	43.5	5.0
Derg Valley	6.0	19	—	3.2	13.3	3.8
Omagh General	6.9	150	—	21.7	63.8	4.5
Roe Valley	13.0	90	—	7.0	27.7	4.1
Strabane	13.0	122	—	9.4	36.9	4.2
Total	186.1	5,341	64			
Northern Ireland Total	908.6	27,850	252			

APPENDIX 13

HOSPITAL MEDICAL STAFFING IN CERTAIN SPECIALTIES AT 30th SEPTEMBER, 1979

Specialty	Consultant		Medical Assistant	Senior Registrar/ Registrar		Senior House Officer	
	Est.	*In Post*	*In Post*	*Est.*	*In Post*	*Est.*	*In Post*
Obstetrics and Gynaecology							
Eastern	22 Includes 6 J/A's	19	—	15	15(3)	35	34
Northern	7	7	—	4	4(1)	10	9
Southern	6	5	—	5	6(2) (1 Super-numerary post)	9	9
Western	5	5	1	3	3(1)	6	7**
Paediatrics							
Eastern	14 Includes 6 J/A's	10*	—	7	8(6)	18	20 (2 in lieu of Registrars)
Northern	2	—	—	—	—	1	1
Southern	3	2	—	1	1	2	2
Western	2	2	—	1	1	3	3
Paediatric Surgery							
Eastern	3	3	—	3	3	5	5

There are no posts in Paediatric Surgery outside Belfast (Regional Specialty).

J/A—Joint Appointment between Q.U.B. and Eastern Board. Medical Assistant posts are personal to the holder and there is no establishment as such.

(—) Figures in brackets show number of Senior Registrars in post.

* 1 Consultant does 2 sessions at Moyle Hospital (Northern Board).

* 1 Consultant does 1 session at Waveney Hospital (Northern Board).

** 1 in lieu of Medical Assistant on Sick Leave.

APPENDIX 14

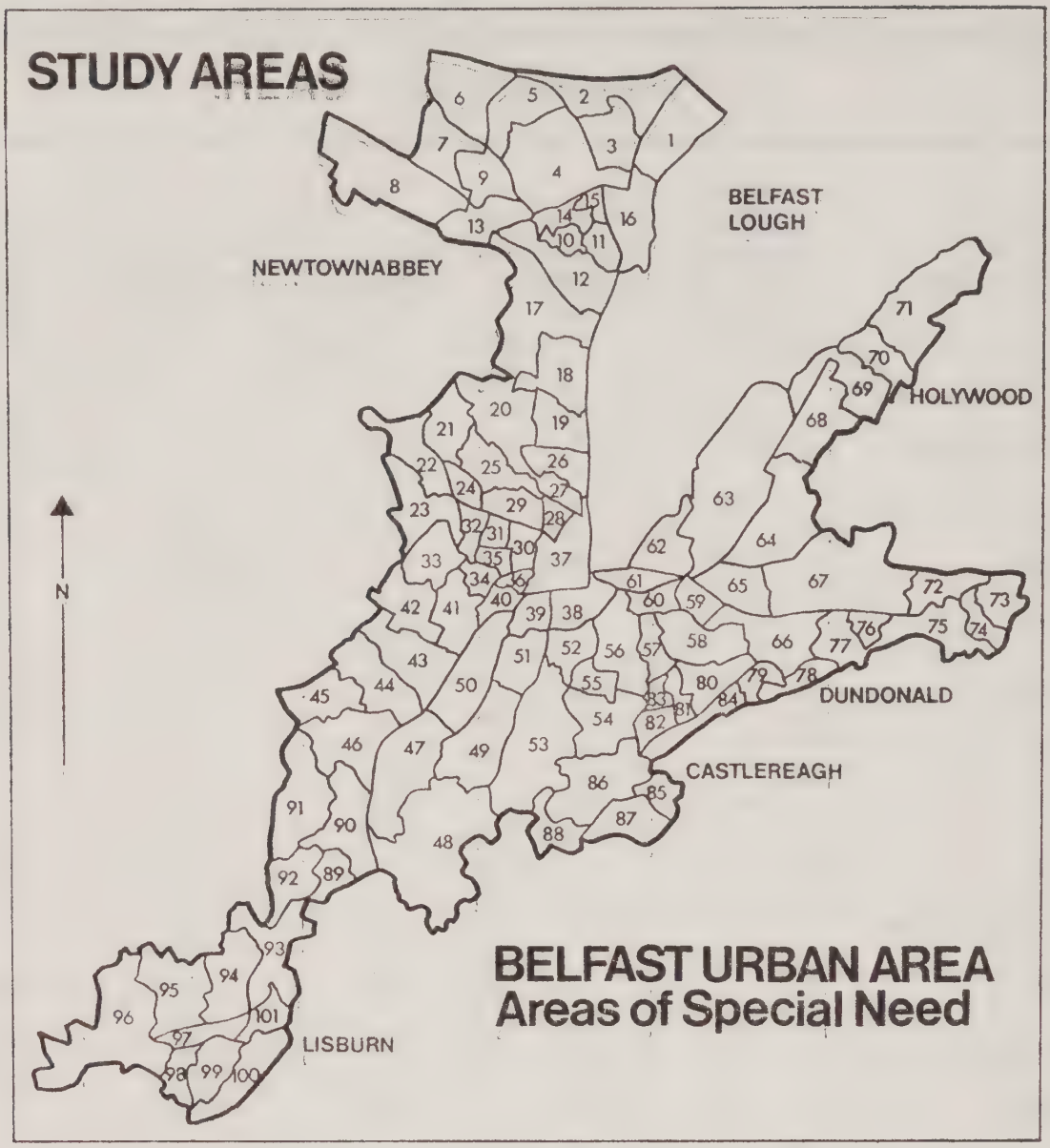
COMPARISON OF INFANT MORTALITY RATES IN SELECTED COUNTRIES, 1977

Country	Late fetal death rate (after 28 weeks' gestation)	Perinatal mortality rate	Neonatal mortality rate	Postneonatal mortality rate	Infant mortality rate
Northern Ireland	12.2	21.4	10.7	6.6	17.2
England and Wales	9.5	17.1	9.3	4.5	13.8
Scotland	8.9	18.5	11.3	4.8	16.1
Austria	7.9	17.5	11.9	4.9	16.8
Denmark	6.0	10.7	5.7	3.0	8.7
Finland					12.0
France	7.6	15.2	9.6	3.5	13.1
Greece*	12.6				20.3
Republic of Ireland					15.7
Sweden			5.8	2.2	8.0
Switzerland	5.8	11.3	6.5	3.3	9.8
Romania	9.8	16.8	11.6	19.5	31.2
United States of America (1976)	7.6	16.9	10.9	4.3	15.2

* Provisional

(World Health Organisation, 1979)

MAP 3



Key to table is on following page
(Areas of Special Social Need, 1977)

ASSN STUDY AREAS — KEY TO MAP

Ward No. (Map)	Ward Name
	Newtownabbey District Council
1	Rostulla
2	Jordanstown
3	Monkstown
4	Cloughfern
5	Carnmoney
6	Mossley
7	Ballyhenry
8	Mossgrove/Mallusk
9	Glengormley
10	Bradan
11	Hopefield
12	Whitehouse
13	Whitewell
14	Dunanney
15	Coole
16	Whiteabbey
	Belfast District Council
17	Bellevue
18	Castleview
19	Fortwilliam
20	Cavehill
21	Ballysillian
22	Legoniel
23	Ballygomartin
24	Ardoyne
25	Cliftonville
26	Grove
27	Duncairn
28	New Lodge
29	Crumlin
30	Court
31	Shankill
32	Woodvale
33	Highfield
34	Clonard
35	North Howard
36	Falls
37	Central
38	Cromac
39	St. George's
40	Grosvenor
41	St. James
42	Whiterock
43	Milltown
44	Andersonstown
45	Suffolk
46	Ladybrook
47	Finaghy
48	Upper Malone
49	Malone
50	Donegall
51	Windsor
52	University
53	Stranmillis
54	Rosetta
55	Ballynafeigh
56	Ormeau
57	Willowfield
58	Orangefield
59	Bloomfield
60	The Mount
61	Ballymacarrett
62	Island
63	Sydenham
64	Belmont
65	Ballyhackamore
66	Shandon
67	Stormont
	North Down District Council
68	Loughview
69	Holywood Demesne
70	Holywood Priory
71	Cultra/Craigavad
	Castlereagh District Council
72	Dundonald
73	Carrowreagh
74	Enler
75	Ballyhanwood
76	Tullycarnet
77	Gilnahirk
78	Lower Braniel
79	Upper Braniel
80	Lisnasharragh
81	Downshire
82	Wynchurch
83	Cregagh
84	Hillfoot
85	Four Winds
86	Newtownbreda
87	Beechill
88	Minnowburn
	Lisburn District Council
89	Seymour Hill
90	Dunmurry
91	Collin
92	Derriaghy
93	Lambeg
94	Magheralave
95	Lisnagarvey
96	Tullyrusk/Knockmore
97	Tonagh
98	Old Warren
99	Lagan Valley
100	Blaris/Hillhall
101	Hilden

MAP 4

DISTRIBUTION OF POSTNEONATAL DEATHS IN NORTHERN IRELAND, 1977

Each dot represents one death

DISTRIBUTION OF HEALTH CENTRES
IN NORTHERN IRELAND AT 31 DECEMBER 1979
APPENDIX 17
1 UPPER LIBRARY STREET
2 CRUMLIN ROAD
3 SHANKILL
4 ALBERT STREET
5 BALLYOWEN
6 SKEGONEILL AVENUE
7 FINAGHY
8 TEMPLEMORE AVENUE
9 CHERRYVALLEY
10 HOLYWOOD ARCHES
BOARD BOUNDARY
DISTRICT BOUNDARY
BALLYCASTLE
COLERAINE
BALLYMONEY
LIMAVADY
EGLINTON
CLAUDY
WATERSIDE
SHANTALLOW
STRABANE
GARVAGH
KILREA
RASHARKIN
PORTGLENONE
MAGHERA
CULLYBACKEY
BALLYMENA
AHOGHILL
LARNE
RANDALSTOWN
ANTRIM
BALLYCLARE
BELLAGHY
MONEYMORE
COOKSTOWN
OMAGH
WHITEHEAD
CARRICKFERGUS
GREENISLAND
DONAGHADEE
BANGOR
NEWTOWNARDS
COMBER
WHITEABBEY
GLENGORMLEY
LISBURN
SAINTFIELD
BALLYNAHINCH
DOWNPATRICK
BROWNLOW
PORTADOWN
GILFORD
MOY
RICHHILL
ARMAGH
MARKETHILL
BALLYGAWLEY
RATHFRILAND
NEWRY
WARRENPOINT
KILKEEL
NEWTOWNHAMILTON
CROSSMAGLEN
BELLEEK
IRVINESTOWN
ENNISKILLEN
LISNASKEA

APPENDIX 18

COMMUNITY HEALTH AND SOCIAL SERVICES STAFFING IN CERTAIN GRADES AT 30th SEPTEMBER, 1979

COLUMNS A SHOW NUMBER IN POST IN WHOLE TIME EQUIVALENTS

COLUMNS B SHOW NUMBER REQUIRED TO MEET DEPARTMENT OF HEALTH AND SOCIAL SERVICES STAFFING GUIDELINES

Health and Social Services Board/District	Clinical Medical Officer		Social Worker		District Midwife		District Nurse/ Midwife	District Nurse	Total	District Nurse	Health Visitor	
	A*	B	A	B	A	B	A	A	A	B	A	B
EASTERN BOARD	6	8										
North and West Belfast	2	4	48	61	15	25	3	48	51	79	42	65
South Belfast	6	5	34	47	3	11	2	25	27	36	21	30
East Belfast and Castlereagh	3	3	29	53	8	17	2	59	61	54	37	45
Lisburn	5	5	13	22		10	27	4	31	33	20	27
North Down and Ards	2½	2	17	29		14	24	43	67	45	26	38
Down			15	20	1	6	15	20	35	19	16	16
Total	24½	27	156	232	27	83	73	199	272	266	162	221
NORTHERN BOARD												
Coleraine, Ballymoney and Moyle	3	3	20	21		10	37	6	43	32	18	27
Magherafelt and Cookstown	1	2	12	14	3	7	24	—	24	24	13	20
Ballymena and Antrim	2	4	18	30	2	12	16	29	45	37	21	31
Larne and Carrickfergus	1½	2	6	14		7	15	3	18	23	10	19
Newtownabbey	2½	3	19	19	6	9	11	21	32	29	24	24
Total	10	14	75	98	11	45	103	59	162	145	86	121
SOUTHERN BOARD												
Armagh and Dungannon	4	4	9	28	7	11	20	3	23	36	29	30
Craigavon and Banbridge	5	4	23	28	10	13	11	2	13	41	35	34
Newry and Mourne	4	3	14	17	6	10	24	6	30	30	24	25
Total	13	11	46	73	23	34	55	11	66	107	88	89
WESTERN BOARD												
Londonderry, Limavady and Strabane	5½	6	28	48	5	19	27	28	55	60	32	50
Omagh	1	2	12	21	3	5	15	3	18	17	11	14
Fermanagh	1	2	7	16	2	6	24	4	28	20	14	17
Total	7½	10	47	85	10	30	66	35	101	97	57	81
Northern Ireland Total	55	62	324	488	71	192	297	304	601	615	393	512

* In post at 31 May, 1980.

APPENDIX 19

CHILDREN BORN IN NORTHERN IRELAND IN 1974 AND 1975 WHO COMPLETED A PRIMARY COURSE OF IMMUNISATION

Year	Type of Immunisation	Percentage of Children Immunised
1974	Diphtheria	66.9
	Tetanus	67.1
	Poliomyelitis	67.1
	Whooping Cough	39.8
1975	Diphtheria	74.2
	Tetanus	74.3
	Poliomyelitis	75.1
	Whooping Cough	39.9

Some children born after 1975 have not yet completed an immunisation course.

IMMUNISATIONS AGAINST RUBELLA 11-14 YEAR-OLDS NORTHERN IRELAND 1974-79

Year	Numbers	Approximate Female Population Age 12 Years	Percentage Immunised
1974	8,204	16,000	50
1975	11,231	16,500	70
1976	10,085	16,500	61
1977	10,486	17,000	60
1978	10,628	16,500	65
1979	12,013	16,700	72

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